OFFICIAL RECORDS
OF THE
WORLD HEALTH ORGANIZATION
No. 243

THE WORK OF WHO
1976–1977

Biennial Report of the Director-General to the World Health Assembly and to the United Nations

WORLD HEALTH ORGANIZATION
GENEVA
1978

RESOLUTIONS

The texts of the World Health Assembly and Executive Board resolutions referred to in this report can be found in the *Handbook of Resolutions and Decisions of the World Health Assembly and the Executive Board, Volume I, 1948–1972* and *Volume II, second edition (1973–1976)*. Resolutions adopted in 1977 can be found in *WHO Official Records* Nos. 238 (EB59), 240 (WHA30) and 242 (EB60), 1977.

ABBREVIATIONS

The abbreviations used in this report include the following:

ACC — Administrative Committee on Co-ordination
CIDA — Canadian International Development Agency
CIOMS — Council for International Organizations of Medical Sciences
DANIDA — Danish International Development Agency
ECA — Economic Commission for Africa
ECE — Economic Commission for Europe
ECLA — Economic Commission for Latin America
ECWA — Economic Commission for Western Asia
ESCAP — Economic and Social Commission for Asia and the Pacific
FAO — Food and Agriculture Organization of the United Nations
IAEA — International Atomic Energy Agency
IARC — International Agency for Research on Cancer
IBRD — International Bank for Reconstruction and Development
ILO — International Labour Organisation (Office)
OAU — Organization of African Unity
PAHO — Pan American Health Organization
PASB — Pan American Sanitary Bureau
SIDA — Swedish International Development Authority
UNCTAD — United Nations Conference on Trade and Development
UNDP — United Nations Development Programme
UNDRO — Office of the Disaster Relief Coordinator
UNEP — United Nations Environment Programme
UNESCO — United Nations Educational, Scientific and Cultural Organization
UNFDAC — United Nations Fund for Drug Abuse Control
UNFPA — United Nations Fund for Population Activities
UNHCR — Office of the United Nations High Commissioner for Refugees
UNICEF — United Nations Children's Fund
UNIDO — United Nations Industrial Development Organization
USAID — United States Agency for International Development
WFP — World Food Programme
WHO — World Health Organization

ISBN 92 4 160243 0

PRINTED IN SWITZERLAND

Contents

Preface

The Twenty-eighth World Health Assembly in 1976 considered it desirable that the Director-General should publish in the *Official Records* in even-numbered years, beginning in 1978, a comprehensive report on the work of WHO during the two preceding years (resolution WHA28.29). This is the first of the comprehensive reports, covering the years 1976 and 1977.

Introduction

1976 and 1977 were exciting years for WHO. New policies were adopted by the governing bodies that are reshaping the activities of the Organization for the next decade, making them more relevant than ever to the needs of its Member States, and in particular of developing countries. Member States participated as never before in the work of the Organization, charting new policy and programme directions in the World Health Assembly, the Executive Board and regional committees, that reflected the changed world political climate. Gone are the days of donor-recipient relationships between WHO and its Member States ; an era of real partnership has replaced them.

The aspirations of developing countries to improve the lot of their citizens were articulated in the declaration of the New International Economic Order, and it is in this context that the dynamic developments in WHO over the past two years should be seen. Guided by the principle of social justice, WHO's recently adopted policies reflect a growing concern for the social purpose of health development and for the role of health in promoting social and economic development. To reduce the gap between the health level of the developed and the developing countries a policy was adopted aimed at reorienting the work of the Organization to ensure that by 1980 the allocations of the regular budget will reach the level of at least 60 % in real terms towards technical cooperation with countries. This policy is in full accord with the Organization's constitutional functions. The strategy for giving effect to this policy is based on the formulation and vigorous implementation of socially relevant technical cooperation programmes, directed towards defined national health goals, that foster national self-reliance in health matters and contribute directly and significantly to the improvement of the health status of the populations concerned. In order to find money for these additional programmes of technical cooperation with countries, it was necessary to make drastic reductions, particularly in the headquarters establishment but also in regional offices. In this way, a total sum of more than US$ 41 million in the regular budget will be made available over the years 1978 to 1981. Let it not be thought that it was easy to make these reductions—far from it ; but if sacrifice there is, it will be more than compensated for if it contributes to providing a fairer share of world health resources to those who need them most.

Justice in the distribution of health resources cannot be achieved through technical cooperation between WHO and its Member States alone. Technical cooperation among countries, and particularly among developing countries, is even more important. It is WHO's duty to complement

these programmes as part of broader cooperative schemes whenever indicated, making full use of the capacities and potentialities of developing countries, including manpower, training and research facilities and exchange of technical information. This concept is implicit in our regional structure, but we still have a long way to go in making it an integral part of our programme. To do so we shall have to concentrate still further on fostering national and regional self-reliance in health matters, even at the expense of becoming more marginally operational.

Encouraged by one major stride in the direction of international health justice, the Organization quickly took another when it decided that the main social target of governments and WHO in the coming decades should be the attainment by all the citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life. The full implications of this daring decision are still being assessed, but no time is being lost in initiating action for the attainment of the target. Not only will dynamic national health programmes have to be formulated by governments, but massive international support will be required. There are encouraging signs that bilateral and multilateral agencies are aware of this need, partly as a result of WHO's efforts at placing health more securely on the world economic and social map. For example, growing interest in health development is being shown by such bodies as UNDP and IBRD. The latter has now agreed to provide funds for the health component of economic development programmes, even if it cannot finance independent health projects as such. Since health development and maintenance is an essential component of very many economic development programmes, the potentials of this new policy are tremendous and we must find ways of exploiting it to the full.

Policy directions taken in WHO during 1976 and 1977 laid the foundations for health development up to the end of the century. The Sixth General Programme of Work, adopted by the World Health Assembly in 1976, constitutes a solid policy basis for WHO's activities in the immediate period ahead. The Organization will use this Programme of Work in a flexible way to chart its path for the years 1978 to 1983, making the most of the regular budget as well as of extrabudgetary funds. It will do so by taking defined national health needs as the starting point, then moulding WHO's response to these needs through medium-term programmes followed by programme budgets that form two-year portions of these medium-term programmes, finally closing the circle through health programme evaluation with the aim of ensuring constant programme improvement in Member States and in WHO. The evolution of this General Programme of Work is in itself a remarkable international social achievement. People of all nations worked in harmony in different national and international fora to formulate it. As a result of these interlinking efforts within Member States, the governing bodies and the Secretariat, it can confidently be claimed that the General Programme of Work is a rightful incarnation of the unity of WHO. However, Member States will accrue benefit from it only if they use it properly. If they go through the Programme methodically, applying what is of relevance to them, they will be able to ensure that the Organization's programmes are true responses to their needs. Through such collaboration the Programme will come to life.

Another blue-print that was formulated during 1977 aims at attaining the main social target mentioned above of "health for all by the year 2000". An essential feature is the

preferential allocation of health resources to the social periphery both within and among countries. To attain the target, priority programmes have been identified and the mechanisms required for health development described, a beginning has been made in assessing the resources needed, and the political support that is essential for success has been highlighted. Of the priority programmes required to reach the target, primary health care must be stressed above all. It is the key to making essential health care available to the masses of the world's population, irrespective of the social and economic conditions in the countries in which they live. But primary health care has to form part of a broader health system, and the other components of that system must be organized in such a way as to support its needs. In the developing countries malnutrition is probably the single most important health problem, and we must succeed in making effective and realistic nutritional activities a cornerstone of primary health care. Another essential feature for health development is water. WHO is committed to participating in the global effort to attain the target adopted by HABITAT, the United Nations Conference on Human Settlements, that is, to have "water for all by 1990". Immunization against common diseases of childhood is another high priority programme, and WHO has resolved to ensure that by 1990 all the children of the world will be provided with such immunization. The control of communicable diseases will continue to demand major efforts, particularly in the developing countries. Primary health care will have to rely on health technology that is more appropriate than much of what is in use today, and it is for this reason that the development of such technology is high on the list of priority programmes. For example, experience has shown that it is possible to ensure safe water and sanitary waste disposal through low-cost technology that makes the greatest possible use of local natural resources, manpower and material. Drugs are inseparable from health technology, and the formulation of new national policies concerning their manufacture, quality and price control, import and export, will have to be given much greater attention. A breakthrough was recently achieved when a WHO Expert Committee came to the conclusion that about 200 essential drugs could meet the vast majority of health care needs. Above all, people to conceive, manage and deliver these programmes are crucial. Principles for attuning the education and learning of health workers to the social needs of populations rather than to the technical dictates of professionalism have been evolved in WHO ; action for change must now start within countries.

The conversion of policy blue-prints into action for health requires energetic planning, and in country health programming we have arrived at a process that is both useful and relatively simple to apply in widely different national contexts. Country health programming is a continuing national process for health development that is intimately linked with social and economic development in general. WHO's function is mainly to ensure the availability of appropriate methodology and, on request, to collaborate with countries in its practical application. This is an excellent example of the fulfilment of WHO's dual role of international health coordination and technical cooperation with its Member States. But to initiate action for health and ensure its dynamic continuity, national and international political determination will be required to overcome political, social, economic and professional obstacles. Tremendous challenges lie ahead for WHO and its Member States, but challenge is the spur to action.

No reflections on the work of WHO for 1976 and 1977 would be complete without mentioning smallpox eradication. We almost reached it, and I am sure we will reach it in the near future.

The only area of concern is the Horn of Africa, particularly Somalia, where variola minor has been active. The number of cases in the area has been steadily declining and at the time of writing has reached zero, but there are still many difficulties which hamper the eradication operations and continued support is essential for complete success. When we succeed, the way will be open to a global abolition of smallpox vaccination, representing an annual saving of rather more than US$ 1000 million to the world community. I can only repeat what I said recently in Bangladesh when I signed the death certificate for smallpox in Asia: "Unity—world unity—is the most powerful means we possess to break out of the vicious circle of poverty and disease".

Director-General

Chapter 1

Governing Bodies: World Health Assembly, Executive Board and Regional Committees

1.1 AT NO TIME since the very early days of the Organization have the governing bodies played such a vital role in shaping policy and in charting new courses for the years to come. The years 1976 and 1977 witnessed profound changes in the orientation of the Organization as the result of initiatives taken by Member States in the Health Assembly, the Executive Board and the regional committees. In addition to the major policy directives of the Health Assembly, the biennium was marked by a progressive trend towards a deeper involvement of the Executive Board and the regional committees in the work of the Organization. The following illustrates some of the major issues dealt with during the period.

Programme budget policy

1.2 Resolutions WHA28.75 and WHA28.76, adopted in 1975, presaged the policy and programme changes that made the biennium 1976–77 so notable in the history of WHO. In resolution WHA28.75, the Health Assembly indicated the main ways in which WHO was giving assistance to countries, requested the Director-General to continue study of the most effective ways and means of providing and augmenting such assistance, using all possible sources of finance, and called upon developing countries to give priority to public health programmes in the allocation of UNDP funds. In resolution WHA28.76 the Assembly decided that the regular programme budget should ensure a substantial increase in technical assistance and services for developing countries from 1977 to the end of the Second Development Decade, and requested the Director-General to adjust the proposed programme budget for 1977 in compliance with the resolution and to take it into account in the preparation of the budget proposals for 1978–79. A complete review of the 1977 programme budget was then undertaken with the object of releasing additional regular budget funds for developing countries and identifying activities that could truly be considered to represent technical cooperation, so as to establish a valid base-line against which progress in the implementation of the resolution would be assessed.

1.3 In May 1976 the Health Assembly adopted an even firmer resolution (WHA29.48) calling upon WHO to reorient its work so that, in real terms, 60% of the regular budget could be allocated to technical cooperation and the provision of services to Member States by 1980. The Assembly specified the need to cut down all avoidable and non-essential expenditure on establishment and administration, both

at headquarters and in the regional offices, to streamline professional and administrative cadres, to phase out projects which have outlived their utility and to make optimum use of the technical and administrative resources available in the individual developing countries. This strategy was put into effect in the latter half of 1976, making available an additional US$ 41 million from the regular budget for technical cooperation programmes over the years 1978–81.

1.4 The implementation of resolution WHA29.48 required drastic reductions in the WHO establishment, particularly at headquarters but also in the regions. Responding to the resolution, the Regional Committee for Africa set up a working group to assist the Regional Director in examining the structures of WHO in the African Region, in analysing the activities of the Regional Office, in reviewing the role of WHO representatives and personnel at country level, and in reorienting Regional activities and reorganizing the structure of the Regional Office. It was also to study the distinction between administrative services and technical cooperation (resolution AFR/RC26/R8). In the other regions, resolution WHA29.48 provoked a similar searching review of all aspects of the regional programmes and the introduction of appropriate measures to give increased emphasis to technical cooperation wherever possible.

1.5 The Organization's response to resolution WHA29.48 was presented to the fifty-ninth session of the Executive Board in January 1977 in a report by the Director-General on policy and strategy for the development of technical cooperation.[1] This report gave a comprehensive account of the policy evolved and the strategy applied and, after describing the development of the role and functions of WHO and the measures envisaged for making the Organization's work more effective and efficient, outlined the reorientation of the proposed programme budget for 1978–79 and the implications for 1980–81 and the future. Compliance with the resolution was summarized thus:

(1) *Cutting down of avoidable and non-essential expenditure on establishment and administration* was being accomplished through the proposed reduction of 363 posts, representing 11.2% of posts under the regular budget. Proposals were being made for reducing the cost of meetings, publications, administration, budget, finance and general services.

(2) *Streamlining of professional and administrative cadres* was being accomplished through the post reductions mentioned, staff development and training programmes, and the increased use of programme development teams and task forces.

(3) *Phasing out of projects which had outlived their utility* was being accomplished at all levels of the Organization to make resources available for new technical cooperation.

(4) *Making use of the technical and administrative resources available in individual developing countries* was being accomplished by increasing the involvement of developing countries in WHO activities, strengthening WHO's collaboration and cooperation with Member States, and developing the Organization's coordination and information transfer capabilities so that more bilateral and multilateral resources could be mobilized for technical cooperation and so that the results of research and technology could be brought to

[1] WHO Official Records, No. 238, 1977, p. 181.

bear on the health needs of populations, particularly in developing countries, through means which they could afford and apply.

Table 1.1 shows the net effect in budgetary and financial terms.[1]

Technical cooperation

1.7 Of major importance in the reorientation of programme budget policy during the biennium was the adoption of the concept of technical cooperation as a guiding principle for the Organization's work.

Table 1.1 Proportion of regular programme budget being devoted to technical cooperation (including policy organs) projected for 1978–81 within 1977 budget level and on basis of 1977 costs (expressed in US$)

	Year				
	1977	1978	1979	1980	1981
Technical cooperation	75 208 719	81 848 000	83 726 000	85 689 000	87 820 000
Other activities (including policy organs)	71 691 281	65 052 000	63 174 000	61 211 000	59 080 000
Total (including policy organs)	146 900 000	146 900 000	146 900 000	146 900 000	146 900 000
Technical cooperation as a proportion of the total (including policy organs)	*51.2%*	55.7%	57.0%	58.3%	*59.8%*

1.6 At its fifty-ninth session, the Executive Board carried out an extensive review of WHO's future programme budget policy and strategy [2] as described in the report of the Director-General and in the report of the Programme Committee of the Executive Board.[3] Interpreting the spirit of resolutions WHA28.75, WHA28.76 and WHA29.48, the Board gave detailed consideration to the technical cooperation and coordination roles of WHO, the identification and definition of technical cooperation, new trends in programme development and implementation and the budgetary and financial implications, highlighting these and certain other issues in its report to the Assembly. The Board concluded by endorsing the programme budget strategy proposed by the Director-General, considering that it responded fully to the policy directives of the Assembly resolutions (resolution EB59.R9). This strategy was subsequently approved by the Health Assembly (resolution WHA30.30).

The term was introduced in the revision of the proposed programme budget for 1977,[4] in preference to that of technical assistance, and reflected recognition of a basic change in WHO's approach that had evolved in recent years. In the past, this approach tended to be based on the traditional donor agency/recipient country relationship, which was no longer acceptable or appropriate. In the light of the discussions at the Twenty-ninth Health Assembly in 1976, the Director-General [5] interpreted technical cooperation to mean activities that had a high degree of social relevance for Member States in the sense that they were directed towards defined national health goals and would contribute directly and significantly to the improvement of the health status of their populations through methods they could apply now and at a cost they could afford now. In formulating these activities the important principle to be kept in sight over the next decade was the aim of developing national self-reliance in

[1] WHO Official Records, No. 238, 1977, p. 199.

[2] WHO Official Records, No. 238, 1977, p. 114.

[3] WHO Official Records, No. 238, 1977, p. 165.

[4] WHO Official Records, No. 231, 1976, pp. 147-149, 204-211.

[5] WHO Official Records, No. 238, 1977, p. 185.

matters of health. The concept of WHO doing something *for* countries should be abandoned and replaced by cooperation *with* countries and the fostering of cooperation *among* countries so that a lasting impact could be made on health development.

1.8 This conceptual interpretation was endorsed by the Executive Board [1] at its fifty-ninth session in January 1977, when it confirmed its earlier approval [2] of the term "technical cooperation" for uniform use throughout the Organization and in the official documentation of WHO. The Board also reviewed technical cooperation in relation to the WHO Constitution.[3] The Organization's first and pre-eminent function was to act as the directing and coordinating authority on international health work.[4] This coordinating function, which included the two-way international transfer of information on health matters, was intimately connected with the fourth constitutional function, namely, to furnish appropriate technical assistance and, in emergencies, necessary aid upon the request or acceptance of governments.[5] In the past, there had been a tendency to see these technical assistance and coordinating roles as if they stood in opposition to each other. Yet the aim of cooperation among Member States and through WHO was embodied in the very spirit of the Constitution of WHO, whose preamble stated that the contracting parties agreed to establish the World Health Organization for the purpose of cooperation among themselves and with others to promote and protect the health of all peoples.[6] The Board agreed that the catalytic stimulation and coordination of technical cooperation among countries was a fundamental component of the Organization's coordinating function and was a promising means of increasing technical cooperation in the spirit of Health Assembly resolutions WHA28.75, WHA28.76 and WHA29.48. Far from standing in opposition to each other, the coordinating and technical cooperation roles of WHO were mutually supportive. To reflect this relationship, the Board adopted in resolution EB59.R9 the formulation that the proposed programme budget strategy was intended "to enhance the coordinating role of WHO and within that approach to reorient the working of the Organization towards increased, effective technical cooperation with and services to governments". This formulation was subsequently approved by the Health Assembly (resolution WHA30.30). The Board considered that the concept of technical cooperation was an evolving concept and that the interpretation given, together with the views of regional committees (for example that of the Western Pacific Region [7]), should continue to be reviewed, not only by the Programme Committee of the Board but by the Board as well.

1.9 The emphasis on technical cooperation should be viewed in the context of the initiatives taken within the United Nations on a system-wide basis during 1976 to help give effect to the New International Economic Order by promoting *technical cooperation among developing countries*. The main governing principles were that these countries should devise specific programmes based on technical cooperation among themselves, which international organizations could complement as part of broader cooperative

[1] WHO Official Records, No. 238, 1977, p. 117.

[2] WHO Official Records, No. 231, 1976, p. 128, para. 15.

[3] WHO Official Records, No. 238, 1977, p. 116.

[4] WHO Basic Documents, 28th ed., 1978, p. 2, Article 2(a).

[5] WHO Basic Documents, 28th ed., 1978, p. 2, Article 2(d).

[6] WHO Basic Documents, 28th ed., 1978, p. 1, preamble.

[7] Resolution WPR/RC27/R18 (including Annex I).

schemes; developing countries should contribute to national and regional institutions located in other developing countries and use these for training; international agencies should make full use of the capacities and potentialities of developing countries, including manpower, training and research facilities and exchange of technical information; financial priority should be accorded to regional and interregional activities emerging under this scheme; and the least developed countries, and developing countries with geographical disadvantages, should be given special attention.

1.10 These concepts are not new to WHO: they are implicit in its regional structure and have been expressed in many interregional activities. Among the means introduced in the biennium to promote, accelerate and facilitate national and regional self-reliance in health matters were: the strengthening of the role of regional committees themselves; the establishment of regional panels of experts to ensure the proper exchange of expertise and experience among countries; and the establishment of regional advisory committees on biomedical and health services research to bring expertise from various countries to bear on research requirements and questions of research policy in the regions. Other means envisaged for the future include the setting up of regional centres for operational research, development and training in specific programme areas, where countries can work together to solve common problems and build up cadres of national health personnel trained towards self-reliance in the development of the programme concerned in their country. A general account of the background, present status and future possibilities of technical cooperation among developing countries, prepared in response to resolution EB59.R52, was reviewed by the Executive Board at its sixtieth session in May 1977, when it endorsed the proposals of the Director-General for WHO activities in this field and, in resolution EB60.R4, invited all Member States to participate actively in the Technical Discussions on the subject to be held during the Thirty-second World Health Assembly in 1979.

1.11 The profound significance for the Organization and for Member States of the evolution of the concept of technical cooperation with and among developing countries may be judged from resolution WHA30.43, adopted by the Health Assembly in May 1977, which, because of its importance as the overriding policy directive for the future, is quoted in full:

> The Thirtieth World Health Assembly,
>
> Faced with the magnitude of health problems and the inadequate and intolerably inequitable distribution of health resources throughout the world today;
>
> Considering that health is a basic human right and a worldwide social goal, and that it is essential to the satisfaction of basic human needs and the quality of life;
>
> Reaffirming that the ultimate constitutional objective of WHO is the attainment by all peoples of the highest possible level of health;
>
> Recalling resolutions WHA28.75, WHA28.76 and WHA29.48 on the principles governing technical cooperation with developing countries;
>
> 1. DECIDES that the main social target of governments and WHO in the coming decades should be the attainment by all the citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life;
>
> 2. CALLS UPON all countries urgently to collaborate in the achievement of this goal through the development of corresponding health policies and programmes at the national, regional and interregional level and the generation, mobilization and transfer of resources for health, so that they become more equitably distributed, particularly among developing countries;
>
> 3. REQUESTS the Executive Board and the Director-General to pursue the reorientation of the work of WHO for the development of technical cooperation and transfer of resources for health in accordance with one of the Organization's most important functions as the directing and coordinating authority in international health work.

Sixth General Programme of Work

1.12 In accordance with its constitutional functions, the Board was deeply involved in the formulation of the Sixth General Programme of Work covering the specific period 1978–83, in close consultation with Member States and the regional committees.

1.13 The Health Assembly, in approving that Programme (resolution WHA29.20), requested the Board:

(1) to carry out annual reviews of the Sixth General Programme of Work, taking into consideration events that occur subsequent to its adoption ;

(2) to carry out in-depth studies and evaluation of particular programmes, as necessary, to ensure that the overall work of the Organization is proceeding in conformity with the Sixth General Programme of Work ;

(3) to continue the study of long-term trends as reflected in the Sixth General Programme of Work for a specific period and their implication for the Organization's future programmes.

In effect, this resolution, which stated that the Sixth General Programme of Work provided an appropriate policy framework for the formulation of medium-term programmes and programme budgets within the period covered, and which recognized that there was a continuous evolution of the Organization's programme, charged the Board with keeping all aspects of programme development under review.

Programme Committee of the Executive Board

1.14 In 1976 the Health Assembly referred to the more effective role of the Executive Board in policy-making and in assisting the work of the Assembly (resolution WHA29.62). Taking account of its increased responsibilities, the Board, in resolution EB58.R11, decided to establish a programme committee to:

(1) advise the Director-General on the policy and strategy involved in order to respond effectively to resolutions WHA28.75, WHA28.76 and WHA29.48 on technical cooperation with developing countries and on programme budget policy ;

(2) review the general programmes of work covering a specific period in pursuance of resolution WHA29.20 and in particular as related to the biennial programme budget proposals of the Director-General.

Thus, a mechanism was created that would not only ensure the Board's full participation in programme development but would also facilitate its work and that of the Health Assembly by allowing both to concentrate on issues of particular importance, as identified by the Programme Committee. The first meeting of the Programme Committee of the Executive Board was held in November 1976, when it considered the policy and strategy for the development of technical cooperation, reviewed the Sixth General Programme of Work, examined various proposals for its own future work and submitted a report to the Executive Board.[1] The second meeting of the Programme Committee of the Board was held in November 1977. It reviewed the implementation of the programme budget policy and strategy as well as the tentative budgetary projections for the biennium 1980–81. It also examined the ways in which the Organization is developing its programme through country health programming, the assessment of long-term health trends, medium-term programming for the implementation of the Sixth General Programme of Work, health programme evaluation and the WHO information system. It studied procedures for introducing changes into the Sixth General Programme of Work and made recommendations on all these issues to the Executive Board.

1.15 The method of work of the Health Assembly and of the Executive Board was

[1] WHO Official Records, No. 238, 1977, p. 165.

studied by an *ad hoc* committee of the Board, established under resolution EB57.R53. On the basis of this committee's report, the Board and the Health Assembly, in resolutions EB59.R8 and WHA30.50 respectively, adopted changes in their proceedings aimed at further rationalizing and improving their work, notably with regard to the review of the programme budget, the role of the Board's representatives at the Health Assembly, the highlighting by regional committees of significant issues in their reports, and the way in which the Director-General should respond to requests from the Health Assembly for reports. Finally, the necessary enabling amendments of Articles 34 and 55 of the Constitution having come into force upon acceptance by two-thirds of the Member States, the Health Assembly decided that the programme budget of WHO would cover a two-year period beginning with the biennium 1980–81 and would be reviewed and approved by the Health Assembly on a two-year basis (resolution WHA30.20).

Organizational studies of the Executive Board

1.16 The organizational studies of the Executive Board provide the Board and the Assembly with a convenient means of examining in detail aspects of WHO's work, policies, procedures and relationships that appear to be of special importance for the Organization as a whole. The studies extend over one or two years, depending on the complexity of the subject, which is selected at least a year in advance.

1.17 In 1976, the Board, under resolution EB57.R33, transmitted to the Health Assembly its organizational study on "The planning for and impact of extrabudgetary resources on WHO's programmes and policy." The term "extrabudgetary" was used to refer to programme funds from all sources other than contributions to the regular budget by Member States, and in the widest sense to voluntary contributions and funds available to the Organization through cooperative programmes in the international health field. The report [1] posed the question whether it was "the will of the Member States that their World Health Organization should play a leading role, or only a marginal role, in the mobilization of resources and development of health programmes to meet the needs of countries and peoples throughout the world." In a narrower sense, the question was: How can WHO mobilize additional external resources in support of its own programme budget? The study analysed the far-reaching implications of these questions. Agreeing that it provided a suitable basis for the fulfilment of WHO's constitutional mandate, the Health Assembly, in resolution WHA29.32, urged all existing and potential sources of extrabudgetary funds to provide the Organization with increased support for the expansion of its efforts in the health field, and requested the Director-General, within the established policies of the Organization:

(1) to take particularly into account the promotion of those planned health programmes that could attract additional resources for the benefit of the developing countries;

(2) to continue to develop appropriate mechanisms for attracting and coordinating an increased volume of bilateral and multilateral aid for health purposes;

(3) to continue his efforts on an interagency basis to harmonize programme budget cycles and planning and operational procedures of the major United Nations funding agencies with those applied to the regular programmes of the organizations in the United Nations system.

1.18 In resolution WHA29.33, the Health Assembly, also in 1976, decided that the next subject of study should be "WHO's

[1] WHO Official Records, No. 231, 1976, p. 71, para. 3.1.

role at the country level, particularly the role of the WHO representatives." In the course of the study, the Board in January 1977 identified a number of issues of special significance (resolution EB59.R33):

(*a*) the changes taking place in the relationships between WHO and its Member States; (*b*) the strengthening of countries' capacities to collaborate actively with WHO in national health development in conformity with policies and principles established by the World Health Assembly, Executive Board and regional committees; (*c*) the practical application of new methods of technical cooperation not only between WHO and its Members but also between Member States; and (*d*) the use of national mechanisms for collaboration with WHO at country level, such as national coordinators, coordinating committees, and programme managers.

In view of the importance of the subject for the future work of the Organization, it was decided that the study be extended for a further year, the report to be presented at the Thirty-first World Health Assembly in 1978 (resolution WHA30.16).

Technical Discussions

1.19 Technical Discussions were introduced at the Fourth World Health Assembly in 1951 and have been held each year, with one exception, since that time. Similar discussions are also a regular feature of regional committee meetings. These discussions give the Health Assembly and the regional committees an opportunity to review in some depth subjects of current global or regional public health importance. The topics covered in the biennium are shown in Table 1.2, grouped according to their main themes.

1.20 The Technical Discussions at the Twenty-ninth World Health Assembly on the health aspects of human settlements immediately preceded the United Nations Conference on Human Settlements (HABITAT), and the general policy expressed by the Health Assembly in resolution WHA29.46 was brought to the attention of the Conference. The implications of this and related resolutions (WHA29.45, WHA29.47) and the consequences of the Conference for Member States and WHO are outlined elsewhere in this report (see page 154). One of the main subjects considered by regional committees was that of primary health care, which includes the concepts of development of the health service infrastructure, the extension of coverage of the population and community participation. The discussions on various aspects of this subject during sessions of the Regional Committees for the Americas, South-East Asia, the Eastern Mediterranean and the Western Pacific constituted a prelude to the International Conference on Primary Health Care, to be held at Alma-Ata, USSR, in September 1978. In the case of the Americas, the discussions led to a decision (resolution AMR/RC28/R32) to convene a meeting of Ministers of Health to adjust the policy and strategy of the Hemisphere so as to achieve the goals of the Ten-Year Health Plan in this field as rapidly as possible.

1.21 "The importance of national and international food and nutrition policies for health development" was the subject of the Technical Discussions at the Thirtieth World Health Assembly in 1977 and also of an agenda item and a draft resolution, included at the request of the Government of Sweden. The resolution adopted (WHA30.51) included in its aims the elimination of florid forms of malnutrition as public health problems, the intensification of nutrition programmes, the determination of groups at risk, the establishment of priorities and the development of systems for nutritional surveillance and the control of contamination of foodstuffs. Nutrition was also highlighted in the discussions held during sessions of the Regional Committees for Africa and South-East Asia.

Table 1.2 Technical Discussions during the World Health Assembly and during sessions of the regional committees, 1976–77

Subject	Year	
	1976	1977
Human settlements		
The health aspects of human settlements	Health Assembly	
Aspects of primary health care		
The development of health services infrastructure, with due regard to the need for extension of coverage	Americas	
Primary health care in the Western Pacific: Basic health services in the rural areas of China	Western Pacific	
Health information systems, with special reference to primary health care and community development		South-East Asia
Health education, with special reference to primary health care		Eastern Mediterranean
Nutrition		
Development of national nutrition programmes, with special reference to vulnerable sections of the population	South-East Asia	
The importance of national and international food and nutrition policies for health development		Health Assembly
The importance of nutrition in socioeconomic development		Africa
Health manpower development		
The role of nursing staff in the health field in the 1980s	Europe	
Health services and manpower development	Eastern Mediterranean	
Other aspects of health services development		
Traditional medicine and its role in the development of health services in Africa	Africa	
Coordination between social security systems and public health		Americas
Information systems in health services		Europe
National drug policies and management		Western Pacific

In the field of health manpower development, the role of nursing staff in the 1980s was examined by the Regional Committee for Europe, while in the Eastern Mediterranean Region the discussions led to the adoption of a resolution (EM/RC26A/R12) calling for a high-level consultation on the relationships between educational institutions responsible for training health personnel on the one hand, and on the other ministries of health and other agencies in the public and private sectors responsible for health services development, with a view to achieving closer collaboration among all concerned.

1.22 Four other aspects of health services development were considered in the Technical Discussions held during sessions of the regional committees: traditional medicine and its role in the development of health services in Africa; coordination between social security systems and public health (Region of the Americas); information systems in health services (European Region); and national drug policies and management (Western Pacific Region). The latter subject was chosen for the Technical Discussions at the Thirty-first World Health Assembly, under the title "National policies and practices in regard to medicinal products; and related international problems" (EB58.R8).

Programme trends and priorities

1.23 In addition to the general policy directives of the Health Assembly, the decisions of the governing bodies in technical fields established certain programme trends and priorities that will have a significant effect on the work of WHO in the future. Some examples are given below, the relevant Health Assembly, Executive Board or regional committee

resolutions being indicated in each case. A landmark in the history of the Organization was the adoption by the Health Assembly in 1976 (WHA29.20) of the Sixth General Programme of Work covering the specific period 1978–83, which had been prepared and submitted by the Executive Board (EB57.R45).[1] This Programme is subdivided into six major areas of concern: Development of comprehensive health services, Disease prevention and control, Promotion of environmental health, Health manpower development, Promotion and development of biomedical and health services research, and Programme development and support. For each area, specific objectives are defined, a variety of approaches for attaining these objectives indicated and criteria established for programme selection, for resource allocation and for determining the organizational level for the implementation of programme activities. The basic criterion of giving priority to problems of developing countries is emphasized. The Sixth General Programme of Work is a solid policy basis for the more detailed formulation of WHO's activities in the years to come. By taking defined national health needs as the starting point, then moulding the WHO response to these needs through medium-term programmes, programme budgets and evaluation, the Organization will use the Sixth General Programme of Work to chart its path in the years 1978–83, making the best use of regular budget and extra-budgetary funds, and introducing modifications and corrections along the way as necessary.

1.24 As WHO's activities at country level become increasingly oriented to national health policies and integrated with national programmes for health and development, its planning process must develop accordingly. The approach used hitherto has been to build the WHO budget out of an aggregation of individually requested projects, each worked out and costed in detail some two to three years prior to the operating period. Such an approach is unduly rigid and not suited to present conditions, and it was in this context that proposals concerning the development of programme budgeting and the management of WHO's resources at the country level were submitted to and approved by four regional committees (AFR/RC26/R7, SEA/RC29/R4, EM/RC26A/R8 and WPR/RC27/R1). Subsequently, the Director-General's report on the subject and the proposals contained therein were endorsed by the Board (EB59.R50) and approved by the Health Assembly (WHA30.23). This change in procedure, which allows greater flexibility, will facilitate programming at country level.

1.25 In the light of the evident progress in programme budgeting and the management of WHO's resources, the Regional Committee for South-East Asia viewed with concern recent moves to develop a central planning and control authority for social and economic development within the United Nations system and the consequent possibility of the assessed contributions to WHO being reduced by being channelled into such a fund. The Committee strongly endorsed the view that the Constitutional mandate of the Organization to furnish adequate technical assistance had to be safeguarded and requested the Regional Director and the Director-General to convey its concern about these developments to Member States (SEA/RC30/R7).

1.26 The need to intensify collaboration with Member States for a systematic assessment of the implementation of the Organization's programme and of its ultimate impact on the health situation of

[1] See page 6.

the countries was emphasized in resolution EB57.R17, on the development of programme evaluation in WHO, and subsequently stressed by regional committees (AFR/RC26/R4, AMR/RC26/R28 and AMR/RC26/R32). Provisional guidelines for health programme evaluation were developed and distributed for preliminary testing and review at regional and country levels. Reviewing the methods of producing the periodic reports on the world health situation, which provide an analysis and evaluation of the state of health of the world for discussion among Member States, the Health Assembly recommended (WHA29.22) the implementation of proposals made by the Director-General for improving the analytical content, coverage and timing of the reports.

1.27 WHO activities related to disasters and natural catastrophies were highlighted by the Health Assembly (WHA29.39), which requested WHO to concentrate on nutrition, communicable disease control and the improvement of health care services in preparing short- and medium-term plans for providing aid to the drought-affected countries of the Sahel. For emergency assistance to countries of the Americas, it was decided (AMR/RC28/R10) that Member Governments should make the necessary preparations and that the Regional Office should establish a disaster unit, to be supported by a natural disaster relief voluntary fund.

1.28 The need for a comprehensive long-term programme for the development and coordination of biomedical research and for a reasonable balance between strengthening existing research institutions and establishing new centres was emphasized by the Health Assembly, which in 1976 requested a comprehensive report (WHA29.64); the policy guidelines contained in the report were endorsed in 1977 (WHA30.40). The deep involvement of the regions in the WHO research programme was ensured by the creation of Regional Advisory Committees on Medical Research and evinced by several resolutions concerning: the designation of the National Institute of Dermatology of Venezuela, the Pan American Center for Research and Training in Leprosy and Other Tropical Diseases (AMR/RC28/R27); the increase in regional budgets for biomedical and health services research promotion and development activities (SEA/RC29/R1 and SEA/RC30/R5); and the strengthening of the Institute for Medical Research, Kuala Lumpur, Malaysia, with a view to its eventual designation as a WHO regional centre for research and training in tropical diseases (WPR/RC27/R9).

1.29 Having considered the reports of the Director-General on the promotion of national health services and health technology relating to primary health care and rural development, the Health Assembly (WHA29.74) affirmed that WHO's priority should be to assist countries to implement steps that will improve the health of underserved populations. It emphasized the need for WHO to establish and develop a programme of health technology relating to primary health care and rural development, and to assist Member States to implement their programmes of primary health care. Different aspects of the same subject were taken up by regional committees (AFR/RC26/R4, AMR/RC28/R32, AMR/RC29/R14 and EM/RC26A/R11), which, with the Health Assembly (WHA30.48), also stressed the need for appropriate training (AMR/RC28/R11, SEA/RC29/R6, SEA/RC29/R8, SEA/RC30/R12 and WPR/RC27/R10). Earlier, the Health Assembly (WHA29.72) had outlined the Organization's role in promoting a rational, systematic and well-integrated approach to health manpower planning, production and management, which was

subsequently elaborated by regional committees (AFR/RC26/R9, AMR/RC29/R32, SEA/RC29/R6, SEA/RC29/R9, SEA/RC29/R10, and EM/RC26A/R12). In this context, the Health Assembly requested the Director-General to establish a long-term programme of health manpower development. Other aspects of general health services development singled out for special consideration included disability prevention and rehabilitation (WHA29.68), road traffic accidents (EB57.R30 and EUR/RC26/R2), emergency medical services (EM/RC26A/R9), the contribution of traditional systems of medicine to health care (SEA/RC29/R11, SEA/RC30/R13 and WHA30.49), the health care of the elderly (EUR/RC27/R6), and health and youth (AMR/RC29/R15).

1.30 With the dramatic decline in the incidence of smallpox and its eradication from most areas of the world in which it was previously endemic, attention was focused on limiting the retention of variola virus to certain designated WHO collaborating centres and on ensuring that adequate stocks of vaccine would be established to meet unforeseen emergencies (WHA30.52). The natural successor to the smallpox eradication programme was the Expanded Programme on Immunization, the policy and strategy of which were approved by the Health Assembly (WHA30.53), which recommended their implementation and the identification and the support of centres that could develop regional vaccine production capabilities (WHA30.54). In the field of tropical diseases, the Board called for a more realistic and flexible approach in the development of the antimalaria programme, with intensified coordination to mobilize greater resources, emphasis on institutional and field training and the development, production and distribution of antimalarial drugs and insecticides (EB57.R26). This approach was endorsed by the Health Assembly (WHA29.73) and reinforced by the Board, which urged countries to give high national priority to antimalaria activities on a country basis (EB59.R13). In the Americas, the Regional Committee reaffirmed that malaria eradication was the final goal, while recognizing control activities as an intermediate stage (AMR/RC29/R25). The Committee also stressed the need for measures to control dengue, yellow fever and the vector *Aedes aegypti* (AMR/RC29/R16). Approving the progress and strategy of the Special Programme for Research and Training in Tropical Diseases as reported by the Director-General, the Health Assembly (WHA29.71) recommended enlargement of the network of collaborating institutions and the establishment of contacts with universities, research institutions and the pharmaceutical sector for the development of new methods of disease control and new preventive and therapeutic substances.

1.31 With regard to noncommunicable diseases, the Executive Board (EB59.R32) established an *ad hoc* committee to make recommendations to the Assembly on all WHO's activities relating to cancer, including those of IARC, with a view to developing a rational strategy for international cooperation. The indisputable scientific evidence showing that tobacco smoking is a major cause of chronic bronchitis, emphysema and lung cancer, as well as a major risk factor for myocardial infarction and certain pregnancy-related and neonatal disorders, was recalled by the Health Assembly when it urged Member States to introduce effective control of smoking (WHA29.55). In resolution WHA29.21, the Director-General was asked to implement his proposals for a multidisciplinary programme on psychosocial factors and health. Subsequent resolutions drew attention to the need for action in respect of mental retardation (WHA30.38 and SEA/RC30/R4) and for the establishment

of a special programme of technical co-operation in mental health (WHA30.45). The Health Assembly also stressed the importance of Member States and WHO strengthening the development of occupational health services (WHA29.57), requesting a report to the Thirty-second World Health Assembly in 1979 on the progress achieved. Alarm at the high and increasing costs of pharmaceutical and biological substances and medical supplies was expressed by two regional committees in resolutions (AFR/RC26/R11, AFR/RC27/R8 and EM/RC26A/R11) requesting the improvement of facilities for the purchase of these products at reasonable cost and investigation of the feasibility of their manufacture within regions.

1.32 In addition to guiding WHO's overall human health and environment programme for the future in resolution WHA29.45, the Health Assembly adopted resolutions specifically on the health aspects of human settlements (WHA29.46) and on community water supplies and excreta disposal (WHA29.47). These resolutions reiterated the importance of improving environmental conditions to contribute to the prevention not only of communicable diseases but also of noncommunicable and degenerative diseases, as well as those induced by pollution. Having considered the report of the Director-General on the United Nations Water Conference, the Health Assembly (WHA30.33) urged Member States to appraise the status of their community water supply, sanitation facilities and services, and to formulate and implement policies and plans for the International Drinking Water Supply and Sanitation Decade 1980–90, recommended by the Conference. Concerned at the increasing number of accidental releases of chemicals into the environment, resulting in adverse effects on health of epidemic proportions, and recognizing that so far existing national or international programmes have been unable to deal adequately with the long-term aspects of human exposure to chemicals, the Health Assembly requested a study of the problem and of the possible options for international cooperation (WHA30.47).

1.33 As a final example of the nature and scope of the policy guidance given by the governing bodies during the biennium, mention may be made of resolution WHA30.44, in which the Health Assembly stressed the paramount importance of appropriate and adequate health legislation for the development of health services, requested the Director-General to strengthen the Organization's programme in this field, requested the Executive Board to re-examine the criteria for the *International Digest of Health Legislation*, and urged Member States to forward their important health laws and regulations to WHO in accordance with Article 63 of the Constitution.

Chapter 2

General Programme Development

2.1 THE ORGANIZATION continued to pursue energetically all efforts at programme development with a view to collaborating with Member countries in the development of national health plans and programmes as an integral part of their overall socioeconomic development systems and, through improved programme concepts, to enhancing WHO's own capabilities to respond to countries' needs in a coherent manner. The biennium saw the further evolution of WHO's programme management system, which includes programme planning, budgeting, implementation, evaluation and information support. The most important location for these functions to take place is the countries themselves.

2.2 Within the WHO Secretariat, coordination of programme management is effected at three levels: regional, headquarters and global. The functions of the regional programme committees vary according to regional circumstances but are mainly concerned with translating the guidance on priorities received from the governing bodies, and the expressed wishes of Member States, into practical programme terms at country and intercountry level. The Headquarters Programme Committee has an important advisory role in the overall development of headquarters programme activities, including their research components; the establishment of criteria and guiding principles for the formulation and implementation of programmes, in accordance with the policies of the Executive Board and the World Health Assembly; the strengthening of mechanisms for programme information support; the review of proposals for medium-term programmes and programme budgets, giving particular attention to new technical cooperation programmes; and the periodic evaluation of selected aspects of the programmes. Further, with a view to coordinating the development and management of the Organization's programme on a global scale, the Global Programme Committee, which is made up of the Director-General, the Deputy Director-General, the Regional Directors and the Assistant Directors-General, was created in March 1977. It is a top managerial forum for holding round-table reviews of major issues concerning programme management for the Organization as a whole.

National health programme development

2.3 The efforts over recent years to evolve a health planning methodology that could be integrated into the framework of total socioeconomic developmental planning have borne fruit in the

form of country health programming—a simple and flexible process that has been shown to be adaptable to varied socioeconomic situations in different countries. As a result, the formulation of health programmes within the context of national socioeconomic plans has tended to replace *ad hoc*, isolated projects. Six countries initiated the country health programming process in 1976, and another eight countries either started or indicated their interest in starting the process in 1977. These figures do not include the Region of the Americas, where a process similar to, but not identical with, country health programming has been in operation in many countries in the Region. WHO's support to country health programming continued to follow the path of developing national self-reliance in planning for health development. This supportive role consists in helping to interpret the methodology and its application, while at the same time ensuring that the essentially national character of the process is maintained. Thus, according to available figures for 1976 and realistic estimates for 1977, national inputs were about 300 man-months, while the WHO input was around 200 man-months, of which 150 man-months was provided by the staff of regional offices and 50 man-months by staff from headquarters. In the Americas, a joint PAHO/WHO project in health planning methodology was studying, from late 1976, the determinants and variables of health planning processes in a number of developing and developed countries in all six regions of WHO.

2.4 From the foregoing, it is clear that a great step forward was taken during a relatively short period of time in introducing country health programming as a systematic but pragmatic approach in planning for health development. Guidelines were updated and are being tested, and training activities were in progress in many countries in five of the six regions. With the accumulation of knowledge and experience in the practical application of country health programming in country situations, it was felt that the time had come for a pooling of experiences which would help in charting the future course for the development of the country health programming concept. Accordingly, an interregional seminar was held in New Delhi in February 1977, attended by national health planners and WHO staff from all six regions, staff from WHO headquarters, and high-level representatives from UNDP, UNFPA, IBRD and USAID. The participants were unanimous in their conviction that country health programming is a useful tool in the planning and management of health development. The seminar also stressed the intersectoral nature of the process. The final recommendations were focused on the following areas :

(i) the training of national staff in order to develop national core groups for country health programming, and adequate technical support by WHO through the development and strengthening of core groups at regional level and at headquarters ;

(ii) the development of appropriate mechanisms at regional offices and headquarters for the collection, analysis and exchange of information on country health programming between countries and the different echelons of WHO ;

(iii) the promotion of research on country health programming as part of health services research within the framework of WHO's research programme, with a view to improving further the country health programming methodology ; and

(iv) the need for WHO to promote the inclusion of planning and management techniques in the training curricula of all categories of health personnel.

WHO general programme development

2.5 The Twenty-ninth World Health Assembly in May 1976 approved the Sixth General Programme of Work covering a specific period (1978–83),[1] "believing that the Programme provides an appropriate policy framework for the formulation of medium-term programmes" (resolution WHA29.20). In order to translate this Programme of Work into operational programmes, the secretariat working group that had drafted it was constituted as the Medium-Term Programming Working Group, responsible for developing the methodology for medium-term programming for the Organization. This group, made up of the six Regional Directors of Health Services and a number of senior staff at headquarters, met for the first time in July 1976 and formulated recommendations and provisional guidelines for medium-term programming. In January 1977 (resolution EB59.R9), the Executive Board endorsed a summary description of the methodology, processes and mechanisms contained in the guidelines for medium-term programming.[2] One important feature of the methodology is the emphasis on the country-oriented approach. The methodology and mechanisms of medium-term programming have so far been applied to the global programme area of health manpower development and, at the regional level (European Region) to the detailed programme on road traffic accidents. In addition, an approach similar to that described in the guidelines for medium-term programming was used in the development of the mental health programme.

2.6 In July 1977 the Medium-Term Programming Working Group reviewed the progress made in the development of medium-term programmes and undertook, at country level, in Honduras, a specific study of the problems involved in setting targets for WHO activities based on country targets. Advantage was also taken of the visit to Honduras to review critically the relevance of the objectives of the Sixth General Programme of Work and of WHO programming in general to the country setting—in terms of local needs and national planning and programming schedules. At the same meeting, the Working Group decided to embark systematically on medium-term programming to cover all the programme areas of the Sixth General Programme of Work before 1980 (the year in which work on the Seventh General Programme of Work should begin). This preparation of medium-term programmes will provide for a complete review and reorientation of the Organization's programmes and will contribute to a more realistic approach in the preparation of the Seventh General Programme of Work. The current medium-term programming guidelines will be revised regularly, and particularly in 1978 in the light of experience gained in the elaboration of the global medium-term programme for health manpower development.

2.7 The Working Group also formulated recommendations to the Headquarters Programme Committee on a new WHO programme classification structure that would be in line with the structure of the Sixth General Programme of Work. This will be a useful tool for planning and administrative purposes such as medium-

[1] WHO Official Records, No. 233, 1976, p. 63.

[2] WHO Official Records, No. 238, 1977, p. 233.

term programming, programme budgeting, evaluation, reporting and information systems. The Working Group also strongly recommended the progressive elaboration of a methodology for translating medium-term programmes into programme budgets —the latter becoming the basic instruments for programme implementation.

2.8 In January 1977 the Executive Board requested its Programme Committee to review the study of long-term health trends and their implication for the Organization's future programmes (resolution EB59.R27). In this respect, a formal analysis of the answers (over 100) received during a consultation on "Long-term perspectives concerning WHO's programmes" was carried out and the results presented to the Programme Committee of the Executive Board in November 1977.

Health programme evaluation

2.9 The main feature of the work in health programme evaluation from January 1976 onwards was the development of guidelines for the Organization's programme evaluation process and the use of a more systematic approach to evaluation. The long-term objective is to collaborate with national health authorities in adapting evaluation methodologies so that their health programmes and services can be evaluated by their own personnel. Underlying the development of the evaluation process is the recognition of the fact that evaluation is an integral part of the *modus operandi* of overall health management mechanisms—planning, programming, implementation, monitoring and (after evaluation) reprogramming. Indeed, evaluation should be a continuous process, not merely an *ad hoc* tool to produce a particular result. This being so, its successful application calls for an objective, critical state of mind at all times. It is essential that evaluation should be carried out at all levels, even if at present only inadequate instruments are available. This means that everyone involved in the Organization's work should assume responsibility for evaluation: governments, the World Health Assembly, the Executive Board, regional committees, national health personnel, and WHO staff at country, regional and headquarters level.

2.10 For the development of practical and flexible evaluation guidelines, an interdisciplinary team at headquarters worked in close collaboration with the regions, under the auspices of the Headquarters Programme Committee. A first set of draft guidelines was elaborated and distributed to regional and headquarters staff for comments. This draft was based on a document, *Development of evaluation in WHO*,[1] presented to the fifty-seventh session of the Executive Board in January 1976, on recommendations contained in the *WHO Technical Report Series*, on documents on evaluation in use in the various regions, and on the practical experience of those involved in evaluation work. The draft guidelines stressed the general principles and the step-by-step approach involved in the evaluation process in WHO. They also indicated the linkages between evaluation and the planning and programming processes for health, as well as the information systems support necessary for proper evaluation.

2.11 The discussions at the Thirtieth World Health Assembly in May 1977 and in the Programme Committee of the Executive Board revealed the urgent need to develop evaluation guidelines for use by countries themselves. The formulation of such guidelines was not only in accord-

[1] WHO Official Records, No. 231, 1976, p. 225.

ance with resolution EB57.R17 adopted by the Executive Board in January 1976, recommending all Member States to introduce a new approach to evaluating health programmes, but was also consistent with the policy of concentrating on rendering appropriate services to Member States to improve their health activities rather than on improving the Organization's efficiency and effectiveness in isolation. Accordingly, the revised second draft of the guidelines contained a section on the process of evaluation of national health programmes by national health personnel. An additional reason for developing evaluation guidelines for national use was that an increasing number of countries were embarking on country health programming and requesting a useful methodology for evaluating their health programmes. The second draft of the guidelines was prepared for testing in Member States and in WHO before the new process of evaluation becomes fully operational. The testing of the national guidelines is foreseen in at least one country in each region in 1978.

Information systems programme

2.12 Continuing liaison is maintained among all the interdependent components of programme development to ensure their coordination. The information requirements of medium-term programming, country health programming, programme budgeting and programme evaluation are being studied. The nature of the support to be provided by the new WHO information system is being determined; it has to be appreciated that this is not a one-time process but a continuous cycle of use/refinement/use of the system.

2.13 The coordination of information matters within WHO during the biennium was effected chiefly by the regional and headquarters focal groups for information systems development. This coordination was strengthened by the establishment of a Standing Committee on Information, composed of those persons responsible for the provision of information services and systems within WHO. The Committee advises on information questions on behalf of the Director-General's Office and the Headquarters Programme Committee and coordinates the Organization's technical cooperation activities that relate to WHO information services and information systems development.

2.14 The Organization's programmes require information in order to perform, and generate information when performing, the two main functions of technical cooperation with Member States and the promotion of the international exchange of health and health-related experience and information. Equally, rational programme planning, implementation and evaluation need to be supported by specific types of information. To ensure that such information is made available in the right form and at the right time, and is coordinated with the evolving reorientation of the Organization's programmes, the development of a new WHO information system was proposed by the Director-General as part of the programme and budget estimates for 1974, 1975 and 1976–77.

2.15 The WHO information systems development work stems from a WHO Information Systems Development Working Group, which was set up in December 1973 with a mandate to draw up recommendations for the development of a new, user-oriented, WHO information system, serving the requirements of the Secretariat, the Member States, the World Health Assembly, and the United Nations Economic and Social Council, and meeting the requirements of coordination within the

United Nations system. During its two-year mandate, the Working Group carried out a number of studies culminating in recommendations on a strategy for WHO information systems development, which was approved by the Director-General and led to the establishment, in April 1976, of a global information systems programme. In addition to its development component, the programme contains a service component to provide information services on all programmes and projects, and support services in administrative management and electronic data processing.

2.16 The WHO information system comprises (*a*) the programme management information system, which provides information *about* the Organization's programmes and which includes the revised reporting system and the administrative and finance information system, and (*b*) a number of special-purpose information systems dealing largely with technical and scientific data and information *for* the Organization's programmes.

2.17 The WHO information systems development strategy aims, first, at developing the framework for the implementation of the WHO programmes management information system and, when this gains momentum, at analysing and rationalizing the special-purpose information systems. The work involved is carried out as a decentralized collaborative responsibility of focal groups for information systems development in each region and in headquarters; thus, coordination is built into the mechanism of implementation.

2.18 A concept, known as the "profile concept", was developed and introduced throughout the Organization as a standardized method for the storage and continuous updating of country and programme information (PAHO is examining a slightly different system). Programme and project profiles were established in their initial form and their periodic updating provides the basis of the new reporting system. Regional programme profiles are expected to become a major source for the regional directors' reports to the regional committees and for the preparation of global programme profiles; the latter are expected to be a major source for the Director-General's reports to the Executive Board and the World Health Assembly. In addition, global and regional programme profiles are available for direct reference and use by all regional offices, regional committees, the Executive Board and the Health Assembly. This system was tested in 1977 and will be gradually introduced in 1978. Several complete reporting cycles will be required before the system stabilizes and is evenly followed in all echelons and programmes of the Organization. Work is well advanced towards the development not only of programme and project profiles but also of country profiles; this work is being coordinated with development of the methodology for country health programming.

2.19 In addition to management information, the programmes require other types of information such as scientific or technical information; information for processing and responding to requests from Member States and organizations; directories and rosters of persons or organizations relevant to the programmes; and bibliographical references. These special-purpose information systems cover a much larger volume of information than does the programme management information system. A survey carried out in 1976 identified 290 such systems and highlighted the need to rationalize existing special-purpose information systems, and to develop new ones; a strategy was proposed for this work. The first practical outcome

will be a pilot master directory of persons and organizations of interest to WHO programmes, and also information on the nature of this interest—a first step in the replacement of a large proportion of nearly 50 special-purpose directories.

2.20 A new administration and finance information system was developed for uniform use throughout the Organization; accounting, budgeting, personnel, supply and other subsystems were developed as integrated parts of the system, which employs computers to reduce workload and increase efficiency in the regions and at headquarters. This system will greatly facilitate planning and forecasting, and includes a warning system to keep both regular budget spending and extrabudgetary spending within set limits. When fully implemented and operational, the new system will ensure the direct comparability of programme information, maintained in the profiles mentioned above, with the corresponding administration and finance information.

2.21 To prepare for the evaluation stage of this new programme, preliminary criteria were worked out for evaluating those components of the WHO information system that will begin to be operational in 1978. Because the information systems programme is primarily a support programme, its evaluation will depend partly on user satisfaction and partly on an assessment of information-related aspects of other programmes.

2.22 Experience during the implementation and testing phases of various components of the new system in all echelons of the Organization provided some indication of the benefits that accrue from the new WHO information system. For example, there was a significant overall reduction in the number and volume of reports being formally transmitted (without detriment to the substance and quality of the information concerned). Again, the number of periodical documents and reports reaching the Regional Office for Africa was reduced from 1200 in 1973 to 600 in 1974 and 80 in 1976.

2.23 Programme profiles are already being used by the Organization's programmes at the country, regional and global levels; their use by Member States, regional committees, the Executive Board and the World Health Assembly will be progressively introduced. It is an important part of the strategy that the system will gradually be refined on the basis of the various users' experience, and this refinement process may take several reporting cycles.

2.24 The information system development described above did not occur in isolation from other information system activities within the United Nations. In addition to direct consultation with, or contribution to, other information system development activities within the United Nations, full collaboration was maintained throughout 1976–77 within the forum of the Inter-organization Board for Information Systems and Related Activities, where WHO both influences and is influenced by other information systems development activities.

Chapter 3

Coordination

3.1 COORDINATION with the United Nations system ensures that health factors are taken into account in the policy and programme formulation and development of other organizations as well as at the broad policy level; this coordination contributes to the overall efforts of the United Nations system by making available WHO's expertise and knowledge through the work of such bodies as the ACC, the Economic and Social Council, the United Nations General Assembly and their subsidiary bodies.

3.2 Resolutions of the thirtieth and thirty-first sessions of the United Nations General Assembly inviting WHO to prepare a draft code of medical ethics relating to the protection of persons against torture were brought to the attention of the fifty-seventh session of the Executive Board and to the Thirtieth World Health Assembly, which requested the Director-General to transmit the study on this subject, being undertaken by CIOMS on behalf of WHO, to the Executive Board for consideration before it is forwarded to the United Nations General Assembly (resolution WHA30.32).

3.3 Certain coordination matters which received the Director-General's attention in 1976 and 1977 were considered within the framework of the ACC, the Economic and Social Council and the United Nations General Assembly. One of these concerned the United Nations Conference on Science and Technology for Development, scheduled for 1979. An internal WHO committee reviewed the Organization's preparations for the Conference and decided that the Special Programme for Research and Training in Tropical Diseases offered the best basis for WHO's contribution. Regional offices and country representatives were requested to provide all necessary help to national focal points established to review their countries' needs in the field of science and technology.

3.4 The Organization was involved with the preparation for and the participation in major conferences of the United Nations system, such as the Tripartite World Conference on Employment, Income Distribution, Social Progress and the International Division of Labour, the United Nations Conference on Human Settlements (HABITAT), the United Nations Water Conference, the United Nations Conference on Desertification and the World Conference for Action against *Apartheid.*

3.5 The Director-General contributed to a wide range of reports and documents prepared by the United Nations for various intergovernmental bodies. In reply to

requests from outside bodies, information was provided on such questions as consumer protection, human settlements, disarmament, human rights and *apartheid*, the role of women in development, rural development, the implementation of the Declaration on the Granting of Independence to Colonial Peoples and Countries, cooperation with the Organization of African Unity, the International Development Strategy of the Second United Nations Development Decade, and programmes for the International Year for Disabled Persons, the International Anti-*Apartheid* Year and the International Year of the Child.

Extrabudgetary sources of funds

3.6 The Voluntary Fund for Health Promotion, established by the Health Assembly in 1960 (resolution WHA13.24) so that voluntary contributions could be received from governmental and private sources for the expansion and acceleration of WHO's activities, has become one of the most important sources of extrabudgetary funds. Donations in 1975 and 1976 equalled the total amount received since the inception of the Fund, as a result of the emphasis given by the Executive Board and the World Health Assembly to this approach to attaining health for all by the year 2000; receipts in 1977 were also substantial.

3.7 An Extrabudgetary Resources Committee comprising members of the WHO Secretariat was established in 1976 to advise on strategies for increasing extrabudgetary resources for the Organization's priority programme areas.

3.8 A central retrieval point was established in WHO to collect information on current and prospective donors and to keep track of proposed projects and contributions. A project catalogue was set up, with descriptions of priority activities suitable for extrabudgetary funding, and a compendium of summary descriptions of these projects is routinely circulated to donors. Such projects, which fall within WHO's General Programme of Work, range from multimillion-dollar long-term activities to those where a minimal financial input can promote national self-reliance in a crucial area.

3.9 Relations were systematically maintained with all donor countries and cooperation was intensified, particularly with the Federal Republic of Germany and the Netherlands. A new departure was a request from the United Kingdom Ministry of Overseas Development for WHO to plan projects for potential financing.

3.10 The Regional Office for the Eastern Mediterranean secured significant contributions from Arab countries for use within the Region, and the possibility was explored of obtaining funds from this source for use outside the Region.

3.11 Following the substantial contribution already made by the Japan Shipbuilding Industry Foundation (Sasakawa Health Fund), a further US$ 1.5 million was donated for 1976 and US$ 2.3 million for 1977.

3.12 Efforts continued to secure further funds for urgent health needs in Viet Nam; a special assistance programme was developed in 1976 between the Government and WHO, totalling some US$ 117 million. The main priority areas for international assistance are: reconstruction of health services, health laboratories, family planning, immunization, pharmaceutical production, venereal disease control and,

above all, malaria. WHO received sizeable contributions from Australia, Denmark, Malaysia, Netherlands and Switzerland and several agencies, including the Japan Shipbuilding Industry Foundation. In 1977 WHO provided US$ 1.5 million from its regular budget. The Organization continued to collaborate with other United Nations bodies, including UNICEF, UNHCR, UNIDO and UNFPA, and with the Coordinator of International Rehabilitation Assistance for the Reconstruction of Viet Nam. Responsibility for the special programme was transferred to the Regional Office for the Western Pacific and a WHO office was established in Hanoi.

3.13 The DANIDA/WHO Joint Programme continued, with an annual expenditure of some US$ 600 000. While a number of training courses were maintained, a greater share of the Programme was devoted to projects executed in the developing countries themselves, in line with the new policy to gear the Programme closely to WHO's main areas of activity. Examples in 1977 included support to health services development in Guinea-Bissau and to auxiliary training in Sudan. Administrative responsibility for the Programme was transferred to the Regional Office for Europe.

United Nations Children's Fund

3.14 The UNICEF/WHO Joint Committee on Health Policy met in Geneva from 31 January to 2 February 1977. The main item on the agenda was the report on the UNICEF/WHO joint study on community involvement in primary health care, which was endorsed unanimously. The Committee also considered reviews of the primary health care programme and the Expanded Programme on Immunization. Recognizing the vital importance of a clean and adequate supply of water as a factor for health, the Joint Committee recommended that WHO and UNICEF should conduct a study on water supply and sanitation as components of primary health care.

3.15 The conclusions and recommendations of the Joint Committee were adopted by the UNICEF Executive Board, which met in Manila from 23 May to 3 June 1977. The Board recommended that UNICEF and WHO should increase joint activities in nutrition and reiterated its endorsement of UNICEF's participation, in partnership with WHO, in the International Conference on Primary Health Care to be held in Alma-Ata, USSR, in September 1978.

3.16 Consultation and cooperation on programmes of assistance took place regularly in the field and among regional offices. Preparation for the International Year of the Child were also being made jointly with UNICEF.

United Nations Development Programme

3.17 The UNDP Governing Council at its January and June sessions discussed the future role and activities of UNDP in technical cooperation, through the optimum use of UNDP country programming. The Council also considered new dimensions in technical cooperation and execution of projects by governments, programme evaluation, and the establishment of an intergovernmental working group on overhead costs and an interagency policy task force, which was established at UNDP headquarters in October 1977. Another central topic was the laying of foundations for technical cooperation among developing countries, designed to

enhance the self-reliance of developing countries, which is in line with WHO's strategy for technical cooperation. The Organization participated in the work of various groups preparing the World Conference on Technical Cooperation among Developing Countries which is to take place in Buenos Aires, Argentina in 1978. Responsibility for WHO's activities within the context of technical cooperation among developing countries was entrusted to the Regional Office for the Americas.

3.18 Cooperation with China was continued. A Chinese Study Mission on Immunology visited WHO headquarters and institutes in Kenya, Switzerland and the United Kingdom. Study tours in public health and basic health services, two training courses on acupuncture, and an interregional study tour on traditional medicine in community health services were arranged in China with UNDP support, for participants from the developing countries. Responsibility for WHO's activities in China was delegated to the Regional Office for the Western Pacific.

World Food Programme

3.19 Table 3.1 shows that assistance given by WFP for health supportive activities decreased. On the other hand, WFP's evaluation processes were strengthened and collaboration with WHO was reinforced.

3.20 The vitamin A enrichment of dried skimmed milk going to xerophthalmia-prone areas was regularly implemented. A simple field test for the detection of vitamin A in dried skimmed milk was devised with the help of Dutch and Swiss industries; similarly, the development of a diagnostic instrument to detect subclinical vitamin A deficiency in the field was pursued.

3.21 The first project using food aid for the specific purpose of developing basic rural health services within the WHO programme in primary health care was approved in late 1977.

Emergency relief operations

3.22 During the biennium WHO participated fully in the United Nations system's work in providing emergency relief and rehabilitation assistance to countries stricken by natural or other disasters. The Organization's activities in meeting needs in emergencies and natural disasters were carried out in close collaboration with UNICEF, UNDRO, UNHCR, FAO, the International Committee of the Red Cross, and the International League of Red Cross Societies. WHO responded to a number of emergency situations as they arose, maintaining the necessary collaboration with Member States and with international and other organizations as appropriate. The following are brief details of some of the Organization's activities in this field during 1976–77.

Angola

3.23 The Organization assigned two public health experts to the United Nations mission that visited Angola in July 1976 to assess the emergency situation there, and contributed US$ 5000 from the Voluntary Fund for Health Promotion (Special Account for Disasters and Natural Catastrophes) to provide vaccines and sera urgently needed for the prevention and control of communicable diseases.

Bangladesh

3.24 Following the floods that affected Bangladesh in March-April 1977, UNDRO

Table 3.1 WFP commitments to projects, 1976–77 (US$ million)

Nature of project	Projects approved at 30 June 1976		Projects approved at 30 June 1977	
	No.	Amount	No.	Amount
All projects				
Development aid	83	614.5	68	350.2
Emergency aid	27	60.7	25	44.8
	110	675.2	93	395.0
Health-related projects				
Health promotion	12	90.7	20	50.5
Institutional feeding	15	123.6	7	66.7
Teaching institutions	1	0.2	4	4.8
Community housing and development	10	34.7	14	72.6
	38	249.2	45	194.6

appealed on behalf of the Government and WHO for medicaments and medical supplies to replenish emergency stocks. There was a speedy response from the Governments of Australia, the Netherlands, and the United Kingdom. Items were also supplied by pharmaceutical firms, by UNICEF, and by the WHO Regional Office for South-East Asia.

Comoros

3.25 Emergency medical supplies were provided during March–April 1976, purchased with funds obtained through UNDRO from various donors including the Governments of Mauritius, the Netherlands, and the United Arab Emirates. In January 1977, technical support was provided in collaboration with UNHCR in connexion with health care for Comorian citizens who returned to the country from Madagascar. WHO provided staff, medicaments and equipment, and US$ 30 000 was contributed from WHO's regular budget towards the salaries of primary health care personnel. In April 1977, technical advice was given to the League of Red Cross Societies on medical relief assistance to the victims of the Karthala volcano eruption.

Cyprus

3.26 In the period from March 1976 onwards, health assistance was given in both the North and South sectors of Cyprus. WHO gave technical assistance to UNHCR on the recruitment of an expert in hospital administration, assigned a consultant in malariology, and provided medicaments and medical supplies purchased with funds made available by UNHCR and with US$ 50 000 contributed from WHO's regular budget in response to World Health Assembly resolution WHA29.44.

Guatemala

3.27 In February 1976 WHO provided US$ 100 000 from the Executive Board Special Fund and PAHO provided US$ 215 000 which, together with a contribution from UNDRO, was used to provide medical supplies, to assist in the health programme required following the earthquake.

Haiti

3.28 In cooperation with UNDRO the Organization assisted the Government in establishing an emergency surveillance system concerned with nutritional status in the

regions affected by a severe drought in 1977. Technical cooperation and supplies were provided from PAHO funds.

Honduras

3.29 Urgently requested medical supplies were provided to the Government following devastating floods in November 1976.

Lebanon

3.30 The Organization allocated in January 1976 the sums of US$ 146 000 from the regular budget and US$ 50 000 from the Voluntary Fund for Health Promotion (Special Account for Disasters and Natural Catastrophes) to accelerate the provision of urgently required medicaments, medical equipment and supplies. In February 1976 short-term consultants in epidemiology and public health were assigned. Subsequently, WHO provided further supplies and equipment with funds made available by UNHCR and the International Committee of the Red Cross. In accordance with Health Assembly resolution WHA29.40, vaccines and medicaments were provided, a sanitary engineer and a sanitarian were assigned during the last quarter of 1976, and further supplies were made available with US$ 130 000 from WHO's regular budget and with other funds from the United Nations Trust Fund for Lebanon. In 1977 a senior WHO public health administrator assisted the Ministry of Health in its rehabilitation programme; WHO also contributed US$ 207 000 from the regular budget towards this programme.

Mexico

3.31 Following the hurricane Liza, the Organization immediately provided important consignments of medical supplies.

Mozambique

3.32 In collaboration with UNDRO, WHO provided technical advice to potential donors of health assistance following the cyclone and floods that occurred in Mozambique in February 1977. The cost of medical relief assistance was covered by contributions from governments through the League of Red Cross Societies, while WHO collaborated with UNICEF to provide medicaments and medical supplies, WHO contributing US$ 100 000 from the regular budget.

Pakistan

3.33 Assistance to the victims of floods was provided by means of a donation from the Government of Iran to the Voluntary Fund for Health Promotion (Special Account for Disasters and Natural Catastrophes). At WHO's request, the donation was in the form of vaccines and sera. Close cooperation was maintained with UNICEF, UNDRO and other agencies involved in assisting the national health authorities in their efforts to combat the public health hazards arising from the floods.

Romania

3.34 To provide medical relief assistance to the victims of the earthquake in March 1977, WHO used funds and supplies donated by governments and other sources through UNDRO and the League of Red Cross Societies.

Assistance in epidemics

3.35 WHO, supported by funds obtained from governments and other sources after appeals from UNDRO, assisted in field operations to combat an outbreak of viral haemorrhagic fever in Sudan and

Zaire in October 1976 and an outbreak of smallpox in Somalia in the first half of 1977.

National liberation movements recognized by the Organization of African Unity

3.36 Following preliminary negotiations, UNICEF, UNDP and WHO convened a joint meeting in Geneva in June 1976 with representatives of the Organization of African Unity and of national liberation movements recognized by it. The meeting resulted in a grant by UNDP of US$ 600 000 for a three-year training project located at Morogoro, United Republic of Tanzania. WHO is the executing agency for this project, which commenced in September 1976. The objectives of the project are to provide training for health personnel and fellowships for medical and paramedical staff. It will also provide emergency medical supplies and equipment for the populations with which the liberation movements are concerned.

Chapter 4

Research Promotion and Development

4.1 THE PERIOD 1976–77 was characterized by three trends in WHO's research activities:

4.2 First, there was greater emphasis on goal-oriented research. Resolution WHA28.70 adopted by the World Health Assembly in May 1975 embodied major research policy directives that influenced changes in the Organization's technical activities, particularly in the fields of research and training in tropical diseases, health services research, the Expanded Programme on Immunization, primary health care, and appropriate technology for health. All these multidisciplinary activities focus on efforts to solve the problems of underprivileged populations.

4.3 Secondly, research became more decentralized. Advisory Committees on Medical Research (ACMRs) were set up and are functioning in all the regions; several regions also instituted task forces, study groups and other mechanisms to mobilize human resources at the national as well as regional levels. Results achieved so far indicate that much progress can be made in a short time by strengthening cooperation among national institutional bodies (such as medical research councils), regional ACMRs, the global ACMR and the WHO Secretariat.

4.4 Thirdly, the volume of WHO's research efforts increased substantially in spite of the unchanged proportion (approximately 5%) of regular budget funds used for supporting research. This expenditure allows the Organization to play a unique catalytic role in the international forum and promote scientific and professional work of good quality. For larger, mission-oriented endeavours, WHO has launched special programmes that rely mainly on extrabudgetary funds. Total allocations for the Special Programme of Research, Development and Research Training in Human Reproduction and the Special Programme for Research and Training in Tropical Diseases in 1977 were of the order of US$ 20 million. These programmes involve many hundreds of scientists and institutions around the world in all regions.

4.5 The volume of research in the field of general health services, although still low compared with the programme's needs, also increased, because a substantial amount of operational research was carried out in many of the other major programmes. The extrabudgetary funding specified for health services research in 1977 was just over US$ 1 million. WHO's research activities on health services development are undergoing rapid expansion.

Global developments

4.6 At the global level, the biennium saw a more active participation of the ACMR in the work of WHO, improved research coordination mechanisms, broader multisectoral approaches to health problems and an intensification of research and training efforts in the several special programmes.

4.7 There was greater involvement of the global ACMR in WHO's research. The participation of chairmen and members of all the regional ACMRs in the global ACMR underlined its broad functions. Group consultations of ACMR members with technical programme staff were initiated. In addition, ACMR members participated in special committees examining problems of worldwide significance, such as the ethical aspects of medical research and safety in handling microorganisms and cells, especially in experiments on recombinant DNA. Individual ACMR members also devoted periods of up to a year to assisting WHO in planning and developing its research efforts. ACMR members are increasingly acting as focal points for contact and coordination with national medical research councils, academies and analogous bodies.

4.8 New mechanisms were developed to improve coordination: the institution of Research Development Committees in headquarters and in the regional offices, an interregional meeting on coordination of research, held in headquarters after the nineteenth session of the global ACMR, and the use of "task forces", "scientific working groups" and "research and training centres" in developing countries.

4.9 Multidisciplinary programme teams were developed in several areas such as country health programming, development of information systems and programme evaluation, appropriate technology for health, research and development in the Expanded Programme on Immunization, research needs in the control of diarrhoeal diseases, health services research, and research potentialities of cancer chemotherapy for developing countries.

4.10 The Special Programme for Research and Training in Tropical Diseases uses technical expertise from many parts of the Organization in planning and implementing the research activities of its scientific working groups. The Special Programme of Research, Development and Research Training in Human Reproduction, in which nearly 70 countries cooperate (including 39 developing countries), is the largest WHO research effort. Details of these two programmes will be found elsewhere.[1]

Ethical aspects of biomedical and health services research

4.11 In March 1976, an International Conference co-sponsored by the World Medical Association, the International Association of Biological Standardization, CIOMS, the United States Public Health Service and WHO discussed the role of the individual and the community in the research, development and use of biologicals.[2]

4.12 In March 1977 a WHO Expert Committee on the Use of Ionizing Radiation and Radionuclides on Human Beings for Medical Research, Training and Nonmedical Purposes examined the ethical implications of this subject, classified research projects according to the radiation

[1] Pages 115 and 57 respectively.

[2] *Bulletin of the World Health Organization*, **54**: 645 (1976).

dose delivered to the subject and the risks involved, and recommended that all research projects involving radiation should be reviewed by ethical review committees.[1]

4.13 The Organization participated in several round-table discussions organized by CIOMS on ethical problems, in particular those involving research on human subjects. A member of the ACMR was a participant at the 10th General Assembly of CIOMS held in November 1976, at which the ethical aspects of biomedical research involving human subjects were discussed, with special reference to the role of ethical review committees. In December 1977, WHO co-sponsored the 11th CIOMS Round Table Conference on Trends and Prospects in Drug Research and Development, at which the ethical aspects of drug development were discussed.

Safety in the handling of microorganisms and cells

4.14 The ACMR at its 18th and 19th sessions (June 1976 and June 1977) made recommendations on a WHO policy on genetic research and stressed the need for more adequate laboratory safety elements (staff, facilities and equipment) in microbiological practice since the number of professional disciplines working with pathogenic organisms is increasing, often without proper training in safety measures and supervision. Safety services in microbiology have, in particular, to be developed in line with the promotion of research in developing countries. In its initial phase the special programme on safety measures in microbiology therefore placed emphasis on the development of codes of practice to prevent accidents and infections in microbiological laboratories. The roles of safety officers, of the Organization, and of national safety committees were defined and the preparation of guidelines was begun.

4.15 Work also commenced on a document to inform public health officers and research workers of new technologies in genetic engineering, the potential benefits and possible risks of these technologies, and the safety regulations established in Member countries. WHO is cooperating with international, regional and national bodies in order to complement new technological developments by improving safety systems and emergency services.

Research training

4.16 Under the WHO research training programme, 97 grants were awarded in 1976 and 1977 to enable research workers to widen their research experience abroad and thus increase their contribution to the research activities of their own countries on their return home. In addition, 59 grants were awarded to promote the exchange of scientific knowledge by enabling investigators working on subjects of interest to WHO to visit scientists in other countries working in similar or related fields.

Regional developments

African Region

4.17 At its first meeting in Brazzaville in November 1976, the Regional ACMR laid down criteria for choice of priorities and the broad guidelines for training research workers. It stressed the importance of the Special Programme for Research and Training in Tropical Diseases and of research on health services, including traditional medicine. The Committee recom-

[1] WHO Technical Report Series, No. 611, 1977.

mended setting up or strengthening national research councils, bringing the directory of existing centres up to date, identifying institutions likely to collaborate in the regional programme and setting up mechanisms for training research workers.

4.18 In Zambia, the Ndola centre was the principal focus for promoting the Special Programme for Research and Training in Tropical Diseases in Africa.[1] An epidemiological survey was carried out of the frequency of the six diseases selected for the Programme.

4.19 In the Volta River basin area, the intercountry onchocerciasis control project [2] continued its research programme, devoting particular attention to the filaricides usable in mass medical treatment and to methods for the biological control of vectors. At the end of 1976, a chemotherapy research centre was set up at Tamale, Ghana. Cytotaxonomic studies of larvae established the distribution of the various species of the *Simulium damnosum* complex within and outside the programme zone. Considerable research was undertaken on the reinvasion of certain valleys during the rainy season.

4.20 The second session of the Regional ACMR took place in Brazzaville in November–December 1977. The Committee recommended the establishment of a network of research and training centres in the Region; reviewed project proposals in malaria and in health services research and recommended priorities in these fields; and recommended the establishment of (1) a Regional research information system; (2) task forces on schistosomiasis, onchocerciasis and trypanosomiasis; (3) an emergency training programme; and (4) a Regional research grants programme.

[1] See also page 116.

[2] See also page 92.

Region of the Americas

4.21 In 1976–77 many research projects were in progress in the Region of the Americas on various aspects of communicable and noncommunicable diseases. Basic and applied research on maternal and child health was also continued. Support was given to immunological research in centres in Brazil and Mexico.

4.22 In 1977 the Organization reviewed the coordination and promotion of research in developing countries in the Region and carried out trial investigations on this subject in Central America.

4.23 Closer contact was established with bodies responsible for organizing health research in Brazil, Colombia, Mexico and Venezuela. Institutions were identified that could act as collaborating centres for research and training. Work was begun on preparing directories of research institutions, investigators and projects.

4.24 Resources were also channelled towards underserved population groups in the Region, and research was promoted on sociomedical, organization and administrative subjects.

4.25 The Regional ACMR met in Brasilia in 1976 and in Washington, DC, in 1977, when it approved new policies for encouraging the development of research in the Region.

South-East Asia Region

4.26 The first two sessions of the Regional ACMR were held in New Delhi in January and August 1976, and the third was held in Colombo in April 1977. It reviewed the recommendations of five research study groups that had been working on malaria, leprosy, alternative strategies for delivery of health care, dengue haemor-

rhagic fever, and chronic liver diseases including liver cancer. The Region's role in the Special Programme for Research and Training in Tropical Diseases was also examined. The Committee considered documentation on facilities for research on primates and discussed the problems of diarrhoeal diseases in children.

4.27 In response to a resolution of the Regional Committee, the Regional ACMR discussed the question of traditional medicine and reviewed on-going as well as planned activities in the field.

4.28 Activities carried out in the 27 WHO collaborating centres in the Region were intensified, and four new centres were designated.

4.29 The Regional Committee recommended at its twenty-ninth session that 2.5 % of the regular regional budget should be allocated to research and that the Director-General should be requested to provide a matching grant.

European Region

4.30 The Regional ACMR, composed of 16 experts, held its first meeting in February 1977. Problems and priorities in the countries were reviewed, as well as fields in which coordination and information would be mutually beneficial. The Committee recommended the establishment of planning groups on selected research priorities. At the request of the Committee a planning group on information systems for medical research met in Copenhagen in June–July 1977 ; its report was presented to the second meeting of the Regional ACMR in October 1977 and the Committee studied its recommendations together with other major questions linked with the development of this programme.

Eastern Mediterranean Region

4.31 The first meeting of the Regional ACMR took place in April 1976. The second was held in March 1977, preceded by a great deal of preparatory work, including the compilation of a directory of research institutions in the Region. The Committee examined the report of a team of WHO consultants who visited Egypt, Iran, Iraq and Sudan to survey the research potential and needs and who made recommendations on research priorities.

4.32 The Committee reviewed a paper outlining the conceptual framework for health services and manpower development, strongly endorsed the priority that had been given to research on these subjects, especially with reference to primary health care, and welcomed plans to implement a region-wide project to undertake relevant studies in selected areas in collaboration with the ministries of health and other institutions in the region, as well as to develop research capabilities in this field.

4.33 The Committee endorsed plans and mechanisms for implementing the regional research programme (including research training awards, grants, contracts and a visiting scientists' programme) and proposed that the programme should be funded initially from WHO's regular budget. One recommendation, now being implemented by the Regional Office, was that a major library in the Region should become a regional medical library ; another concerned the establishment of a scientific group to assist in implementing research proposals for health services and manpower development. This group was established and met in July–August 1977 to formulate research projects for implementation.

Western Pacific Region

4.34 The Regional ACMR created three task forces at its first session in June–July

1976, concerned with health services research, cardiovascular diseases, and parasitic and other communicable diseases. The first of these met twice and discussed the definition of health services research, its scope and problem areas, and suggested solutions, and considered the progress and development of the Korean Health Development Institute, Seoul.

4.35 The Regional ACMR held its second session in April 1977, when it reviewed recommendations on ways and means of strengthening the Institution for Medical Research in Kuala Lumpur to enable it to provide research and training facilities for the whole Region. The Committee also approved a multidisciplinary research programme on schistosomiasis.

Chapter 5

Strengthening of Health Services

5.1 THE HEALTH SERVICES in many countries are not keeping pace with the changing needs and demands of populations—either in quality or quantity—and it has become clear that the present structure and operation of these services do not effectively meet the requirements of the majority of people. The World Health Assembly, the Executive Board and the Regional Committees have discussed this question at length during the past few years, and the debate culminated in the adoption of resolutions WHA28.88 in May 1975, which stressed the importance of promoting national health services relating to primary health care, and WHA29.74 in May 1976, which dealt with the promotion of national health services and health technology in relation to primary health care and rural development. In May 1977 the World Health Assembly further adopted resolution WHA30.43, having decided that the main social target of governments and WHO in the coming decades should be "the attainment by all the citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life".

5.2 During 1976–77 various activities in the area of strengthening of health services were undertaken in Member countries. These activities were directed towards change, towards adapting to new approaches, and towards developing new programmes that will eventually lead to strengthening of health infrastructures in order to meet the fundamental needs of Member States. In response to the above mandates, WHO made efforts to prepare technical guidelines and material for countries to adapt and to use in their national programmes.

Primary health care

5.3 There is increasing evidence from all regions that many countries have accepted the primary health care approach. So that health care may be provided to underserved or unserved populations, appropriate health services at local level, supported by a workable referral system, clearly must be developed. This activity is gradually taking place, not in isolation but within the overall socioeconomic development process. Integrated rural development, of which health is part, is being seriously considered by many countries as a solution to constraints arising from sectoral plans drawn up in isolation. Activities that are often considered to be outside the health sector but have a great impact on health, such as the provision of potable water, are now being given top priority, especially among the underserved

populations. In some countries rural development schemes with health as an integral component are being assessed so that the factors that have contributed to their success may be taken into account when future programmes are being planned.

5.4 In the African Region, 17 countries have accepted the primary health care approach. The South-East Asia Region reports that eight countries have formulated primary health care projects as an integral part of basic health services. Seven countries in the Eastern Mediterranean Region have shown interest in the same approach. In the Sudan, a primary health care programme has been developed in cooperation with several bilateral agencies. In Iran, research on the development of health services, stressing primary health care delivery, is taking place. Many Member States in the Western Pacific Region have initiated primary health care programmes with particular emphasis on the development of health care workers.

5.5 The idea is also gaining acceptance in developed countries, where, despite constantly rising costs, health services do not necessarily meet the needs of the people. In the European Region, primary health care appears to hinge on four main issues: the relationship between social services and health services, the rapid increase in the cost of health services, the role of outpatient treatment and health centres, and the function of professionals involved in primary care. Studies are being carried out on patterns of health delivery, for instance on the role of polyclinics in the USSR and on the outpatient approach in Algeria, Spain and Turkey.

5.6 In the Region of the Americas, Member Governments selected "Community participation in health" as the theme for a public education campaign in 1977; 17 countries were reported as having received technical assistance in improving the operation of community development services. In the South-East Asia Region, several governments were experimenting with various innovative approaches involving community participation through voluntary health workers, schoolteachers, practitioners of traditional medicine, health cooperatives and insurance schemes.

5.7 Each regional office undertook activities to promote the primary health care concept; meetings were held at which nationals were invited to share their experiences. For instance, the Regional Office for Africa convened an expert committee on primary health care in March 1977;[1] follow-up action has been planned. The Regional Office for the Americas held three intercountry working groups on various aspects of primary health care: health service coverage (primary health care and community participation), technology and administration and organization, subjects that were discussed by the IVth Special Meeting of Ministers of Health of the Americas in September 1977.

5.8 The Eastern Mediterranean Region, in line with resolution EM/RC25A/R15 and in an effort to promote primary health care in Member countries, formed a Regional Advisory Panel on Primary Health Care with participants from nine countries. A UNICEF/WHO Inter-Agency Consultation on Primary Health Care was held in Alexandria in October 1977 to discuss ways of promoting and supporting primary health care at country level and to plan future inter-agency programming efforts. A joint UNICEF/WHO study on community participation in health services

[1] World Health Organization. *Primary health care.* Brazzaville, 1977 (AFRO Technical Report Series No. 3).

was completed in 1976 and the report published.[1]

5.9 WHO, as a member of the ACC Task Force on Rural Development, is participating in country studies in integrated rural development, initially in Bolivia, Lesotho, Liberia, Samoa and Somalia.

5.10 Research is of crucial importance in this field, especially in relation to the appropriateness, effectiveness and efficiency of technology being developed and used, as well as to other operational aspects such as training methodologies, organization and community involvement mechanisms and evaluation. Consultative groups and the global and regional Advisory Committees on Medical Research formulated recommendations regarding priority areas for research in health services development.

5.11 In the Republic of Korea baseline data for operations research were collected and a continuing education programme for *myun* (district) health workers was established. In the Philippines the findings of an operational research study were applied in the development of a restructured rural health service in which midwives with further training take charge of primary health care clinics at the periphery.

5.12 In connexion with the acceptance of the primary health care approach, the functions and training of various types of health workers were reviewed in many countries—the health guardian in Honduras, the sanitary worker in the New Hebrides and the *barangay* health worker in the Philippines. The guiding principle in this review is that all health interventions should be undertaken at the most peripheral practicable level of the health services by a worker suitably trained to function at that level. In some countries several cadres of auxiliary workers are being developed; in others nurses are being used in primary health care activities for services and as teachers and supervisors. During 1976–77 there were attempts in many countries to make medical and nursing education more relevant to local needs, with greater emphasis on community care. In the Eastern Mediterranean Region, nursing personnel form the largest single category of health personnel and without them the health services could not function: they are often the only health workers in community services, and probably no other health worker has such ready access to the home.

5.13 Traditional medicine[2] was discussed by a regional expert committee[3] meeting in Brazzaville in February 1976 and by the Regional Committee for Africa in Kampala in September 1976. The need was expressed to improve the practice of traditional medicine and to improve collaboration between traditional healers, health team personnel, the public and authorities. In many African countries, research is being carried out in the use of medicinal plants. In the South-East Asia Region, the Regional Committee in 1976 emphasized the need to use traditional systems of medicine to complement "modern" medicine, so as to provide the community with the best of both.

5.14 Collaboration with bilateral and nongovernmental agencies continued, not only in the development of promotional

[1] *Report of the 1977 UNICEF/WHO Joint Committee on Health Policy: Community involvement in primary health care — a study of the processes of community motivation and continued participation* (document JC21/UNICEF-WHO/77.2 Rev.2).

[2] See also page 44.

[3] World Health Organization. *African traditional medicine.* Brazzaville, 1976 (AFRO Technical Report Series No. 1).

materials such as films but also in some countries (for instance, Cape Verde, Guinea-Bissau, Rwanda and Sudan) in the form of exploratory negotiations, the provision of cost and budget estimates and project formulation itself. Planning for the International Conference on Primary Health Care to be held in Alma-Ata, USSR, in September 1978 continued, and national dialogues and regional conferences took place, in close cooperation with UNICEF. Other organizations also expressed interest in the Conference and have organized preparatory conferences with WHO, such as the WHO/New York Academy of Sciences Symposium on Primary Health Care for the Industrialized Nations, held in New York in December 1977.

5.15 WHO's technical programmes are being reoriented ; coordination at all levels of the various programmes is vital to ensure that wherever primary health care programmes are being implemented the various activities are not developed in isolation. Much remains to be done, especially regarding the development of suitable indices that Member States can use to assess the progress made in the development of health care and the overall improvement of the health status of their populations.

Appropriate technology for health

5.16 The new programme of appropriate technology for health, established following the adoption by the World Health Assembly of resolution WHA29.74 in May 1976, was launched in January 1977 with a consultation to initiate a series of procedures in preparation for a longer-term programme. The ultimate goal is to promote national self-reliance in problem-solving in primary health care delivery. 1977 was an extremely active year, with the focus on the promotion of the concept, planning and programming for the future, the development of an information system, research, and the initiation of country activities. An illustrated brochure defining and explaining the programme content was prepared, articles appeared in WHO publications, a photographic library was started and an illustrated panel prepared for exhibition in the regions. The Regional Office for the Eastern Mediterranean organized a meeting in November 1977 for WHO staff at country level.

5.17 As the first priority should be the development of technologies of direct benefit to local communities, a provisional list of recognized needs for appropriate technology was sent as a checklist to countries in all regions, and they were requested to state their own requirements and priorities. Based on an analysis of country statements, a consultation in December 1977 established priorities for research activities and field projects and formulated a global plan of action relating to output targets, defining the four main functions of the programme as : direct assistance to countries, collaboration with selected institutions, evaluation of progress, and the collection and dissemination of information on existing and new technologies. A simplified health technology literature bank was set up in the Regional Office for Africa and a contract was made with the Appropriate Health Resources and Technologies Action Group in London, United Kingdom, to establish a clearing-house to explore the range of needs for information services and to identify groups capable of taking responsibility for meeting these needs.

5.18 There are numerous research activities covering, for instance, village obstetrics, oral electrolytes for rehydration, anaemia and vitamin A deficiency screening, and certain immunization technologies, in

particular the "cold chain". The aim is that developing countries should participate fully by developing local solutions, drawing upon local traditions and resources and, where possible, setting up the local or intercountry production of tools and techniques.

5.19 The main activities will be at country level. Programmes were proposed by the regions (for the Lao People's Democratic Republic and the Philippines, for instance), their content discussed and financing explored; preliminary steps were taken to organize workshops and seminars in 1978; discussions took place with all regions to establish, in certain countries, study areas for exploring the process of problem identification, design and field testing of technologies and problems relating to acceptance, production, marketing and evaluation.

5.20 In the Region of the Americas, countries were encouraged to formulate appropriate technology policies and to assess new technologies in terms of their impact on existing national health facilities and maintenance programmes, their adaptability to special conditions in the country, their cost and their potential hazards.

5.21 The important question of maintenance and repair of equipment has tended to be neglected in the past. Special efforts in this connexion were made in the Eastern Mediterranean Region, where, in addition to cooperation in several national projects, it is planned to set up a regional training centre in Iraq. All the other regions acknowledged the need to help countries to develop programmes in the maintenance of health care facilities.

Health service development

Health care facilities

5.22 In 1974 a comprehensive study of the planning, programming, design and architecture of hospitals and other health care facilities in developing countries was undertaken by WHO. The study attempted to bridge the gap between existing knowledge and experience and their practical application. Its final outcome will be the implementation of technology appropriate to the development of health care facilities, and practical advice on all phases of development, from area-wide planning to equipment, maintenance, operation and administration. In November 1976 a meeting of investigators identified the difficulties met in the planning, design and operation of health care facilities in developing areas; examined ways of solving problems; and reviewed the relevance of the WHO study and advised on its content, its further development and the application of its results.

5.23 Reactions to the first volume of *Approaches to Planning and Design of Health Care Facilities in Developing Areas*,[1] published in 1976, demonstrated the timeliness of the study. It fills a gap not only for developing countries but also for professionals from developed countries, who often do not realize to what extent their training and experience are out of phase with the conditions and needs of developing countries. A case study project will be undertaken in this connexion, with the following objectives: to identify the range of existing options, together with constraints and problems; to verify in practice the usefulness of various standards and criteria; and to provide the basis for linking tested technologies relating to the planning, design and functioning of health care facilities with relevant national and WHO programmes and projects.

5.24 An interregional seminar on the organization and management of out-

[1] World Health Organization. *Approaches to planning and design of health care facilities in developing areas, Vol. I.* Geneva, 1976 (WHO Offset Publication No. 29).

patient health care and ambulatory health services took place in Sofia, Bulgaria, in October 1977, and was attended by participants from French-speaking countries.

5.25 In the African Region, most countries have embarked on structural reorganization of their health networks to improve coordination; 20 countries have regionalized their services. Concern for rationalization is also reflected in efforts to strengthen hospital administration, as in the Comoros, Mali, Mozambique and Togo.

5.26 In the Region of the Americas, the increased demand for medical care in national and regional hospitals stimulated efforts to strengthen the role of local hospitals and to relate them more effectively to the primary care service network. The introduction of progressive patient care schemes at the hospital level provides another important means of tailoring the use of resources and technologies to the medical requirements of the individual and the community. Experience gained in Brazil, Chile, Colombia, Peru and Uruguay can be applied in programmes aimed at a more efficient and effective utilization of the present capacity of the 13 000 hospitals in Latin America.

5.27 At the current stage of development of health services, ambulatory care has become very important in rural and urban areas as it facilitates the channelling of medical technologies concentrated in hospitals towards the peripheral health care network. An important project for the development of ambulatory services was undertaken in Managua, Nicaragua.

5.28 In the South-East Asia Region, governments, with WHO collaboration, are operating a number of national projects to develop a well-organized referral system in support of primary health care as part of the national health services. A national health programming exercise in Thailand identified the provincial care project as one of its most important projects, the main objective being to provide integrated, preventive, promotive, curative, and rehabilitative medical care to the underserved rural population. Particular attention is being paid to increasing the provision of primary health care and the two-way referral services—health centre to district hospital to provincial hospital, and *vice versa*.

5.29 In many countries of the European Region, the provision of medical care requires the more active participation of government (central and local), insurance, welfare and other organizations. For this reason, during 1976–77 special stress was placed on planning for medical institutions, the study of economic aspects of medical care and its impact on health, the improvement of management standards and the use of experimental models and operational research.

5.30 With the socioeconomic changes in the Eastern Mediterranean Region, there has been an upsurge in the building of new hospitals, accompanied by increased efforts to modernize and expand hospital services in almost all countries of the Region. Improved planning, design and management, and the integration and regionalization of services are recognized needs. During the past few years, notable improvements in hospital architecture, design and administration have been effected in Iran, Jordan, Pakistan, Syrian Arab Republic and Yemen. A national course in training in hospital administration, sponsored by WHO in collaboration with the National Institute of Public Administration, was organized in Lahore, Pakistan, in December 1976.

5.31 In the Western Pacific Region, a number of operations research studies and medical care administration projects were further developed in order to improve health service design and operation. In the Philippines the second phase of the operations research study of the rural health services was completed. The purpose was to develop an effective management system with components of supervision, supply and information monitoring to support the restructured health service delivery system. In the Republic of Korea, a study was undertaken in collaboration with UNICEF to develop and improve health service design for use in the delivery of health care to the rural population.

Utilization of medical care

5.32 The results of the WHO/International Collaborative Study on Medical Care Utilization were published in 1976.[1] In order to provide a guide for policy-makers, a practice-oriented version was published in 1977.[2]

Emergency care

5.33 Recognizing that preparation for natural or man-made disasters can greatly reduce the toll in lives and human misery, a growing number of countries are preparing emergency health plans. A steady increase in the number of medical emergencies in countries of the Eastern Mediterranean Region was noted by Sub-Committee A of the Regional Committee in 1976, which urged the Regional Director to continue WHO collaboration in developing emergency medical services and to consider establishing a Regional Advisory Committee on this subject (resolution EM/RC26A/R9).

5.34 To give persons responsible for organizing emergency medical services an opportunity to study experience in other countries, in 1976 WHO organized an interregional travelling seminar in Iran and the USSR. Officials from seven countries of the Eastern Mediterranean Region (Egypt, Iran, Iraq, Kuwait, Libyan Arab Jamahiriya, Pakistan and Sudan) took part.

Financing of health services

5.35 As part of the overall effort to strengthen national health services, methods of financing the health sector, including the non-public part, were studied. In developed countries the rising costs of health services were a major cause of concern; in developing countries lack of funds, lack of coordination between different sources funding health activities, and the considerable difference between health expenditure in practice and the declared policies of equitable distribution of funds and services were identified as major problems.

5.36 Problems of rising costs of medical care under social security and possible cost containment measures were extensively discussed at an expert meeting organized by ILO in May 1977 with the active participation of WHO.

5.37 A WHO study group in November 1977, attended by representatives of several bilateral and multilateral aid agencies and technical organizations, examined data collected in a worldwide survey of methods of financing health services. Major problem areas were identified, mainly in developing countries, such as lack of funds, lack of

[1] Kohn, R. & White, K. L., ed. *Health care: An international study*. London, Oxford University Press, 1976.

[2] White, K. L., Anderson, D. O., Kalimo, E., Kleczkowski, B. M., Purola, T. & Vukmanović, C. *Health Services: Concepts and information for national planning and management*. Geneva, World Health Organization, 1977 (Public Health Papers, No. 67).

coordination of resources, inequitable distribution of available funds, and inadequate attention to cost aspects. Case studies were provided from three Latin American countries and three European countries, as well as from Bangladesh, Republic of Korea and Senegal. The group considered some approaches to solving the main problems, such as the mobilization of new sources of financing, and the suitability of social security and health insurance schemes in developing countries. Low-cost methods for surveying a country's health sector financing were identified that could be used to assess the possible discrepancies between intended health policies and reality and to stimulate corrective action.

Disability prevention and rehabilitation

5.38 There are probably some 400 million disabled persons in the world, most of whom do not receive attention from rehabilitation or other services. Health services have always been geared to mortality-related problems rather than to disability, and governments have given low priority to the promotion of services for the disabled. Such services are not lacking: on the contrary, some US$ 200 million is contributed annually to services in developing countries by voluntary and nongovernmental organizations. They are, however, unevenly distributed, giving a few patients, mainly in capital cities, long-term, high-cost institutional care, often by expatriate staff using sophisticated equipment.

5.39 1976 saw a major step forward in attempts to create change. A totally new policy and programme was discussed by the Governing Bodies, and the World Health Assembly recommended reorientation towards the introduction of effective measures for disability prevention, with the application of rehabilitation at the primary health care level (resolution WHA29.68). The first step must be a survey of the population's needs; in 1976–77 surveys began in five countries with SIDA support. New policies on manpower were developed, involving the use of simply but adequately trained multipurpose community-based workers rather than specialized rehabilitation teams to provide therapy. Projects related to the prevention of disability in the productive age are planned for three countries. Since 1975 cooperation with organizations within and outside the United Nations system has increased, and joint discussion and action for planning cooperation in the field is now the rule rather than the exception.

5.40 In the Region of the Americas, cooperation in rehabilitation activities was continued. A prosthetics school in Argentina was reorganized. A plan was prepared to consolidate rehabilitation services on a national basis in Bolivia. Collaboration was established with the Sarah Kubitschek Center, Brasilia, for training rehabilitation staff at all levels. In Chile a fellowship was provided in speech therapy. In Colombia training courses in rehabilitation were started for doctors, and special courses were included in a seminar in Medellín. Consultations were held in Guatemala on the possibility of integrating rehabilitation activities into existing basic health services. Cooperation was strengthened between the school of physical therapy in Jamaica and institutions in other English-speaking countries and territories in the Caribbean. Assistance was likewise provided to Mexico in postgraduate courses for physiotherapists and occupational and speech therapists. A course in respiratory rehabilitation was given for doctors, and the Organization participated in a national study group on social rehabilitation. In Uruguay rehabilitation services were promoted in rural areas. In Venezuela a course for doctors

in cardiopulmonary rehabilitation was given, and research was begun on the identification of patients needing rehabilitation services at the primary health care level.

5.41 In the South-East Asia Region, a seminar on medical rehabilitation was organized in August 1977. In Burma a team of specialists in occupational therapy, orthopaedics and rehabilitation and physiotherapy assisted in the planning, organization and establishment of a school for occupational therapists and advised on teaching. Problems in orthopaedics and rehabilitation were reviewed and advice was given on the planning and development of the Kemmendine Orthopaedic Hospital. A four-week national intensive course of practical exercise therapy in rehabilitation for physiotherapists was also held. In India, WHO collaborated in the organization of a national workshop on disability prevention and medical rehabilitation, psychology, physiotherapy, prosthetics and orthotics, health education and social welfare.

5.42 The European Region was closely involved in a study carried out in Yugoslavia on disability in the productive age, and a national symposium on the subject took place in February 1977. The increased mortality and morbidity resulting from road traffic accidents in Europe led the Regional Office to develop a European programme on prevention which now forms the nucleus of a WHO global programme. Another programme being developed as a result of concern voiced by Member States relates to the phenomenon of an aging population, with all its economic, social and health implications. This concern motivated the Regional Committee meeting in Algiers in 1976 to invite the Regional Director to develop a comprehensive programme on the health care of the elderly.

5.43 In the Eastern Mediterranean Region, which has fairly extensive rehabilitation programmes, WHO mainly supported the training of relevant personnel but also helped in organizing and strengthening rehabilitation departments, in setting up prosthetic and orthopaedic workshops and by providing supplies for the production of prosthetic aids. An important part of the programme is the work of the Regional Training Centre for Technical Orthopaedics in Teheran, Iran, which has continued to train orthotist/prosthetists from countries within and outside the Region. In Afghanistan, WHO activities are now focused on providing supplies and equipment for the production of prosthetic aids. In Jordan, Lebanon, Pakistan, Saudi Arabia and the Syrian Arab Republic, the training of prosthetic and orthotic technicians or of physiotherapists and occupational therapists was supported.

Health planning

5.44 WHO cooperated with countries in developing their capabilities to formulate, implement and evaluate their health policies, plans and programmes in a way conducive to social promotion and economic development. Country health programming, with WHO collaboration in national efforts, took place in Burma, Guinea-Bissau, Nigeria and Sudan, as well as in related training workshops in Burma, Mozambique and Nigeria.

5.45 In the Region of the Americas, countries concentrated on redefining national health plans with the aim of extending health care coverage in rural areas. Brazil, Colombia, Costa Rica, Guatemala, Haiti, Honduras, Mexico, Nicaragua and Paraguay were involved in this process; Bolivia, Ecuador and El Salvador completed it. The Pan American Health Planning Programme ended in December 1976 after a

five-year period of UNDP assistance. The interregional project on Comprehensive Health Planning in Colombia, which undertook research in the development of several health subsystems, ended in December 1977.

5.46 In the South-East Asia Region, country health programming projects were formulated: in Burma, which now has 6 service programmes; in Nepal, where the Health Planning Unit received assistance in developing the information base needed for implementing and evaluating 12 health projects; and in Thailand, where 19 health projects were established. In Indonesia, national health planning was evaluated at a meeting of the Joint WHO/Indonesia Coordinating Committee in November 1976.

5.47 In the European Region, efforts were concentrated on information on health planning systems and on related training. Activities are increasingly being devoted to evaluation and research, including studies comparing several countries' planning approaches. A planning meeting and a workshop were held in Copenhagen in December 1976 and June 1977 respectively on behalf of the Regional Office for the Americas and PAHO. Case studies from several European countries were finalized as part of a worldwide review of health planning methodologies.

5.48 A first Coordination Meeting on Economics and Health was held in Copenhagen in July 1976 at the suggestion of the European Medical Research Council. It was recommended that the Regional Office for Europe should assume responsibility for coordinating activities in the field of health economics. A working group on the role of health economics and planning in the development of national health policy was organized in Cologne, Federal Republic of Germany, by the Regional Office in June 1977.

5.49 In Eastern Mediterranean countries, health services have developed to such a degree that many governments have been able to formulate long-term national health plans. Three countries (Pakistan, Sudan and Yemen) have initiated or are continuing country health programming.

5.50 In the Western Pacific Region country health programming was begun in Fiji and Samoa in 1976. Health planning and management activities were expanded through an intercountry project providing training and advisory services in planning and programming, project formulation and management, operations research, information systems development and economic analysis.

Health service information

5.51 The continuous improvement of an information base for the management of health delivery systems in Member countries is an important aspect of WHO's technical cooperation programme. This subject was discussed in regional Advisory Committees on Medical Research and Regional Committees (during the Technical Discussions in the case of the South-East Asia and European Regions).

5.52 Regions oriented their health statistical activities to promote the establishment at country level of information services in line with the needs for management of health delivery systems. In countries where health planning is in progress or the reorganization of specific health programmes had been undertaken, the information base received great attention. Country health programming proved to be an important entry point and a catalyst for the development of management information systems.

5.53 In the African Region, WHO contributed to the development of health information systems in six countries (Burundi, Lesotho, Nigeria, Rwanda, Zaire and Zambia).

5.54 In the Region of the Americas, Bolivia, Colombia, Costa Rica, El Salvador, Honduras and Peru were designing and implementing information systems as part of their health management processes, with emphasis on incorporating such systems into programmes for extending health services coverage to rural populations and marginal periurban areas.

5.55 In the South-East Asia Region the development of health information systems is considered a priority for effective planning and management. As a result of country health programming, projects for establishing such systems were developed in Burma, Nepal and Thailand. Indonesia instituted a number of experimental projects aimed at improving the management of health centres, and Mongolia was developing a national health information system.

5.56 In the European Region the measurement of levels of health as a basis for assessing the need for and the outcome of health service interventions was debated by a working group in Nieberow, Poland, in March 1977. A meeting in Copenhagen in December 1976 focused on information on the health of the elderly, the use of the health services by the elderly and the prediction of demographic changes in the population's age structure. The Second Joint ECE/WHO meeting in Geneva in October 1976 considered the integration of various components of health information systems with other (e.g., social and demographic) systems, and a Joint International Federation for Information Processing/WHO Working Group in Prague, Czechoslovakia in August 1976 examined the development of health data banks and their use in health service management. WHO collaborated with Algeria, Iceland and Morocco in developing components of their health information systems.

5.57 In the Eastern Mediterranean Region a number of countries were developing health information systems or subsystems in collaboration with WHO. Projects were formulated in Kuwait, Libyan Arab Jamahiriya, Qatar, Saudi Arabia and the United Arab Emirates. In Sudan the development of a management information system was an important element in the formulation of a primary health care programme.

5.58 In the Western Pacific Region activities to strengthen information systems at country level included cooperation with Malaysia in developing a comprehensive information system to support planning and management; a similar effort is underway in the Philippines.

5.59 Research continues to be focused on the development of better indicators, lay reporting, primary health care and the need to evaluate different aspects of health services, with special emphasis on coverage.

Traditional medicine

WHO's action programme

5.60 Following the publication of the report of a joint UNICEF/WHO study [1] recommending the mobilization and training of practitioners of traditional medicine, including traditional birth attendants, for primary health care services, several Member States enquired about follow-up action

[1] Djukanović, V. & Mach, E. P., ed. *Alternative approaches to meeting basic health needs in developing countries*. Geneva, World Health Organization, 1975.

by the Organization, particularly regarding the promotion and development of their respective traditional and indigenous systems of medicine. A small group consultation was held and in January 1976 the subject was considered by the Executive Board. The following action was proposed:

(1) Collecting all available data on traditional healers and indigenous systems of medicine—the results of survey and research findings, of studies of traditional practices, and of training programmes for traditional healers and indigenous practitioners.

(2) Analysing the available information in order to determine the relevance of traditional healing to the primary health care needs of the various populations.

(3) Studying, in the field, existing systems of traditional or indigenous medicine in each Region.

(4) Suggesting the main directions for action, with special regard to the training of traditional healers and their utilization in the health system.

(5) Suggesting further action in this field by Member States, and by the WHO Secretariat.

5.61 An interdivisional working group was formed at headquarters to coordinate the various activities. The regions initiated training programmes for practitioners of traditional medicine, including traditional birth attendants, and orientation courses for physicians, nurses, midwives and other health workers. Studies and research were undertaken to ensure the further development of services and the application of simple technology in the work of these practitioners. In October 1976 regional office representatives concerned with traditional medicine met in New Delhi and proposed the following programme objectives: (1) to foster a realistic approach to traditional medicine, in order to promote and further contribute to health care; (2) to explore the merits of traditional medicine in the light of modern science, in order to maximize useful and effective practices and discourage harmful ones; and (3) to promote the integration of proven valuable knowledge and skills in traditional and scientific medicine.

5.62 High priority would be given to the developing countries, particularly as regards primary health care within the context of each country's political structure, economic resources and development plans. The programme would be carried out in close collaboration with the regional offices and primarily at the country level and with active community participation. The suggested approaches included the formulation of national health policies that would contain provisions concerning traditional medicine and mechanisms for the coordination and better utilization of the useful elements of traditional medicine in the country's health care system. The administrative machinery needed to ensure effective planning, utilization and supervision of practitioners of traditional medicine would be reviewed within the context of the national health care delivery system.

5.63 Multidisciplinary investigations on systems of traditional medicine would be encouraged, and special attention given to laboratory and clinical investigations identifying effective remedies comprising medicinal plants, animal products, and mineral substances. Investigations would also be conducted on psychosocial and anthropological aspects of traditional medicine, as well as on acupuncture, moxibustion and other healing methods. Wherever possible priority would be given to the development of useful local resources such as herbs for the production of medicinal substances.

Research and studies

5.64 Many claims are made concerning the control and cure of diseases by healers and practitioners of traditional medicine. Recently, reports have been received that herbs are being used in several tropical countries for the control of diabetes mellitus and the management of rheumatoid arthritis. Such claims need to be investigated scientifically; efforts are therefore being made to locate collaborating centres with the facilities to undertake such work.

5.65 In May 1977 the World Health Assembly urged interested governments to give adequate importance to the utilization of their traditional systems of medicine with appropriate regulations as suited to their national health systems; requested the Director-General to assist Member States to organize educational and research activities and to award fellowships for training in research techniques, for studies of health care systems and for investigating the technological procedures related to traditional/indigenous systems of medicine; and further requested the Director-General and the Regional Directors to give high priority to technical cooperation for these activities and to consider their appropriate financing (resolution WHA30.49).

5.66 As a follow-up to this resolution a study tour on traditional medicine in community health services was organized in China in August 1977, with 29 participants from the same number of developing countries. The main purpose was to study the manner in which China has harnessed its legacy of traditional medicine to the needs of its vast rural population and has combined the traditional Chinese system with western medicine. The group studied the training of health personnel, including practitioners of traditional Chinese medicine and barefoot doctors. The group also examined the preparation and use of medicinal herbs, the production of pharmaceuticals and the use of special methods such as acupuncture. Agricultural practices, irrigation projects, housing schemes and rural development were also studied.

5.67 A consultation held in Geneva in November–December 1977 reviewed and endorsed the Organization's programme on traditional medicine, and made recommendations on future action regarding the collection and analysis of information relating especially to the role and functions of the various practitioners of traditional medicine, including birth attendants, and their training; the integration of traditional systems with modern medicine; and various research activities and studies to be pursued, with particular reference to primary health care.

Chapter 6

Family Health

6.1 THE ORGANIZATION is now facing the challenge of promoting family health care, in particular as an integral part of primary health care and rural development. There is a need to identify more clearly the problems and needs of the family as a whole, as well as to improve and reorient health care on the basis of the family as a unit of care. Family health care ultimately depends upon the education of family members about their responsibilities for their own health care, and upon health workers, who must see beyond the individual to the family and community.

6.2 The health sector is not the only sector involved in meeting the basic health needs of the family; many family health activities are part of broader, intersectoral programmes. In 1976–77, special activities for the promotion of integrated development were carried out in connexion with the status of women, with population and with nutrition as they relate to health and development. During 1976 both the Executive Board and the World Health Assembly discussed women's health, women as health care providers, and women in health and development in general. In accordance with resolution WHA29.43 adopted in 1976, working groups reviewed issues relating to women in WHO's programmes, highlighting the specific health needs of women and the contribution of women in the health sector. During 1976–77 WHO worked closely with the United Nations and organizations within the United Nations system to develop an interorganizational programme for the Women's Decade of Equality, Peace and Development, following the adoption by the United Nations General Assembly of Resolution 3520 (XXX) in December 1975.

6.3 Population issues are regarded as an integral part of overall development, including health development. WHO works through the ACC subcommittee on population to harmonize the activities of the United Nations agencies in this field, and participates in the interagency task force that is developing a common conceptual framework, with models. Such models can serve not only as a basis for national coordination of programmes among the development sectors but also for facilitating technical cooperation. The Organization also contributes to the monitoring, review and appraisal of follow-up actions to the World Population Plan of Action, which contains major sections directly related to WHO's programme of work. The Plan includes various resolutions on fertility and health and on the reduction of maternal and infant mortality and morbidity. The data compiled and analysed for this exercise will therefore

provide a valuable basis for the evaluation of health programmes, especially those in maternal and child health and family planning.

Maternal and child health

6.4 The years 1976 and 1977 were marked by increased technical cooperation at the country level, with its emphasis on developing local strategies to provide maternal and child health care that meets the specific needs of given communities and suits the life-style of the populations concerned. This approach was in line with recommendations by the WHO Expert Committee on Maternal and Child Health [1] and endorsed in national and international meetings and seminars.

6.5 The Organization worked with almost all the developing countries in strengthening the maternal and child health care component of health services, usually with family planning as an integral part. Specific country projects emphasizing service organization, administration, or training were implemented in more than 70 countries. Table 6.1 lists 62 countries and areas where there were projects, existing or planned in 1976–77, in which WHO, as executing agency, collaborated with UNFPA; the projects were supported by WHO intercountry family health teams and by 32 WHO staff members at the country level. These activities at country level accounted for 75% of the total funds provided by UNFPA in 1977. During 1976–77 the number of *new* country projects increased by about 50% in the African and Eastern Mediterranean Regions. The country projects reflect the diversity in the types of new or expanded national programmes being developed. In parts of Africa, for example, in addition to common maternal and child health problems, infertility is a major concern; the Organization worked with the Central African Empire, Congo, Gabon, Sudan and the United Republic of Cameroon in analysing the problem. In Mexico and Thailand, the emphasis was on the extension of family planning to provide nationwide coverage; in Morocco, Nepal and Viet Nam, on the promotion of maternal and child health, with child spacing or family planning; in Iraq, on the reorientation of maternal and child health care, to reach rural populations.

Table 6.1 Countries and areas with family health/family planning projects, 1976–77 [a]

	Total
African Region	
Botswana, Burundi, Central African Empire, Congo, Gambia,[b] Guinea, Guinea-Bissau,[b] Kenya, Lesotho, Liberia, Mali, Mauritius, Nigeria, Seychelles,[b] Sierra Leone, Swaziland, Togo, United Republic of Tanzania	18
Region of the Americas	
Bolivia, Brazil, Chile, Colombia, Cuba, Dominican Republic, Ecuador, Haiti, Honduras, Mexico, Peru, St Kitts-Nevis, St Vincent	13
South-East Asia Region	
Bangladesh, Indonesia, Mongolia, Nepal, Sri Lanka, Thailand	6
European Region	
Algeria, Morocco, Turkey	3
Eastern Mediterranean Region	
Afghanistan, Democratic Yemen, Egypt, Iran, Jordan, Pakistan, Somalia,[b] Sudan, Syrian Arab Republic, Yemen	10
Western Pacific Region	
Cook Islands, Fiji, Gilbert Islands, Malaysia, New Hebrides, Papua New Guinea, Philippines, Samoa, Solomon Islands, Tonga, Tuvalu, Viet Nam	12
	62

[a] With UNFPA funding.

[b] Project request submitted but approval not yet received at the end of 1977.

6.6 Most of these country projects had been in progress for several years, and during 1976–77 attention was given to the series of tripartite reviews and annual programme reviews that form part of the regular project monitoring system. In addition, WHO was involved in eleven

[1] WHO Technical Report Series, No. 600, 1976.

national programme evaluations. Certain evaluations led to concrete changes. In Chile and Haiti, for example, the evaluation pinpointed areas where service extension was deficient, and changes were made to ensure wider coverage. In Malaysia, the evaluation led to a revision of the information system, with emphasis on maternal mortality, which was found to be relatively high in comparison with infant and childhood mortality. In Sri Lanka, the evaluation indicated the need to change to a simpler method for treating gastroenteritis (e.g., oral rehydration).

6.7 WHO and Member countries sought ways to reorientate maternal and child health programmes within the primary health care approach. This reorientation was the subject of seminars in the South-East Asia and Western Pacific Regions in 1976; it requires the development of new strategies, better approaches to management, appropriate technology, and human resource development. One managerial strategy being developed and promoted by WHO is the risk approach, which uses health problem indicators to identify levels of risk and to set priorities according to local circumstances and resources. The aim is to give special attention to those in greatest need—and at greatest risk—within a framework of basic health care for *all* mothers and children, achieved by maximum utilization of existing resources, including nonconventional community resources such as teachers, traditional birth attendants, and women's groups. Studies on the application of the risk approach were started in 1977 in Malaysia and Turkey. Based on the data of the PAHO study on patterns of mortality in childhood,[1] a new strategy of care was being applied and evaluated in a few states in Brazil.

6.8 A programme was initiated with the International Planned Parenthood Federation to re-examine the technologies currently being used in maternal and child health and family planning care, to identify those technologies which require modification for use in the home or by auxiliaries and to identify areas where new technologies need to be developed. The development of appropriate technology for the perinatal period began in 1977, through the PAHO Latin American Center for Perinatology and Human Development, which has an on-going programme of research on the simplification, cost reduction and qualitative improvement of techniques for maternal care.

6.9 Other activities for the promotion of appropriate maternal and child health care technologies being applied at the country level included the distribution in 1976 of a guide for use at the primary level on the treatment and prevention of dehydration in diarrhoeal diseases, and in 1977 operational research on the application of the oral rehydration technique described in the guide was carried out in a few countries in each Region.[2]

6.10 The better utilization of local and traditional human resources is fundamental to primary health care. In four regions (Africa, the Americas, Eastern Mediterranean and Western Pacific), action was taken to improve the utilization, training and supervision of traditional birth attendants in broader maternal and child health care. In the Region of the Americas, teaching materials for traditional birth attendants were prepared.

[1] Puffer, R. R. & Serrano, C. V. *Patterns of mortality in childhood: Report of the Inter-American Investigation of Mortality in Childhood.* Washington, DC, Pan American Health Organization, 1973 (Scientific Publication No. 262).

[2] See also page 101.

6.11 A strategy based on building national self-reliance was evolved in 1976–77 in the field of human resources development. It emphasizes the systematic strengthening of national institutional capacities to meet the maternal and child health and family planning service needs of the country, within the country. This strategy is the basis of a programme of teacher-training in fertility management and maternal and child health care initiated in 1977. Courses and other types of training activity are supported only as part of a more comprehensive programme of manpower planning, adaptation of educational methods, and management skills development, carried out within the context of local situations. A multidisciplinary core group of persons involved in the training of all levels of health personnel in the country is made responsible for the development of the national programme. The approach is flexible and the nature of WHO involvement and support differs from country to country. This type of programme began in 1977 in the Sudan, as a complement to the national primary health care programme, and in Mexico, as part of the newly inaugurated national family planning programme, which emphasizes the integration of maternal and child health and family planning in rural areas. PAHO also developed a diagnostic and evaluative method for national human resources development in the area of maternal and child health and family planning; the method was applied experimentally in Brazil during 1976–77.

6.12 In the field of management, PAHO collaborated with the School of Public Health of Mexico and the University of the West Indies in carrying out a programme to improve the administration of family planning programmes; it included the training of national administrators of family planning programmes from thirteen countries in regional courses. PAHO also formulated guidelines on the use of indicators and service statistics for improving programme management in this field. The development of management skills also formed part of a course given by WHO in collaboration with the Government of Bulgaria for French-speaking senior maternal and child health administrators from developing countries.

6.13 The systems approach proved useful in the formulation and implementation of projects. In Nigeria, for example, the management techniques and project design developed with the project systems analysis method in Sokoto and Niger States in 1973 were used as examples for programme development in the rest of the country during 1976–77. The systems approach was used in Algeria to improve the process of selection of appropriate technologies, based on the systematic analysis of what actions were possible at each level of the services, and on the programme objectives set.

6.14 Data on the physical and psychological growth and development of children are important for national policy formulation and programme planning. WHO, through its collaborating centres on growth and development in Romania, Senegal, the United Kingdom and the USSR, is collecting such data and has also developed a field manual on standardized procedures. The studies in Dakar are unique: they involve collecting data on the growth and development of two generations.

6.15 The Regional Office for South-East Asia initiated a series of studies on the main causes of high levels of perinatal mortality and morbidity occurring in Burma, India and Sri Lanka. The data collected will serve as the basis for orienting the training of health workers and for

effective intervention. The problem of perinatal care in developing countries was also discussed in a workshop held in Gimo, Sweden, with participants from all regions; practical recommendations were made on perinatal care in out-of-hospital environments.

6.16 Low birthweight, a problem of major public health significance, was reviewed at a workshop organized jointly by the Swedish Agency for Research and Cooperation with Developing Countries and WHO in Uppsala in June 1977, with participants from various disciplines including economics, sociology, paediatrics and obstetrics. Birthweight distribution and percentage of low birthweight were considered to be a yardstick of development. An estimated 22 million low-birthweight infants are born each year. This problem has serious implications as regards not only immediate survival but also the subsequent ability of the child to achieve its full potential. WHO set up a task force to study the extent and nature of low birthweight, the contributing factors before and during pregnancy and the practical intervention measures for prevention.

6.17 Infant feeding practices are critical for infant survival and health. Because of the importance of breast-feeding and the role of lactation in prolonging postpartum amenorrhoea, and thus birth spacing, WHO developed a multinational research and education programme, working closely with UNICEF and FAO, and in collaboration with SIDA and UNFPA. The countries involved are Chile, Ethiopia, Guatemala, Hungary, India, Nigeria, Philippines, Sweden and Zaire. During 1976–77, extensive epidemiological data were collected on breast-feeding, and complementary social surveys were made on this subject. On the basis of the data collected, a series of measures are now being planned and implemented. Many additional countries and agencies have expressed interest in the WHO collaborative programme and wish to participate.

6.18 A WHO Expert Committee on Health Needs of Adolescents, meeting in Geneva in 1976, highlighted the need for a deeper understanding of adolescents in today's rapidly changing societies and the need for greater compassion and insight during this transitional period.[1] A series of meetings arranged by the Regional Office for Europe during 1976–77 reviewed the problems of children in the 10–13 and 14–18 age groups and the role of the family, school and community in preventing and treating these problems. A survey on education and services meeting reproductive health needs of adolescents was started, and physiologically oriented research on the effects of contraception on the maturation process in adolescence was also begun.

6.19 A major cause of maternal and perinatal mortality is hypertensive disease of pregnancy (pre-eclamptic toxaemia), which is seen in most parts of the world. Its etiology remains unknown. It can occur in 0.5–35% of pregnant women and is responsible for one-fifth to one-third of all maternal deaths. In 1977, a meeting reviewed existing knowledge on the epidemiology, clinical course, prevention and management of this syndrome. While more work is required on detection and prevention, the group emphasized that the widely used treatment with diuretics is not effective, and may even be harmful; they confirmed the value of adequate antenatal care, with appropriate diet and bed rest.

6.20 A number of countries, especially Asian countries, are now incorporating such services as medical termination of pregnancy and sterilization into their

[1] WHO Technical Report Series, No. 609, 1977.

national maternal and child health and family planning programmes. WHO therefore prepared guidelines for female sterilization to provide up-to-date, accurate information on the technical and organizational aspects of introducing this type of service.[1] In India, the Organization also supported teacher-training for health professionals in the medical termination of pregnancy.

6.21 WHO's activities in maternal and child health are carried out in close collaboration with many nongovernmental organizations and United Nations bodies in various fields related to health and development (role and status of women, social productivity of youth, social services and legislation for women and children): UNICEF, the International Federation of Gynecology and Obstetrics, the International Children's Centre, the International Paediatric Association, the International Planned Parenthood Federation and many others. During 1976–77, a review was made of the legislative and service aspects of day care approaches, and a project was started with UNICEF in Bangladesh. Activities were carried out with the International Federation of Gynecology and Obstetrics and the International Paediatric Association, to strengthen the contribution of the professional organizations to social paediatrics and social obstetrics. Preparatory work began for the International Year of the Child, proclaimed for 1979 by the United Nations General Assembly.

Nutrition

Multisectoral approach

6.22 Although the health sector has definite and important responsibilities in preventing and alleviating the effects of malnutrition, the multisectoral causal factors involved can only be corrected in cooperation with other sectors. WHO has therefore made special efforts to coordinate its work in nutrition with that of other agencies concerned with food, nutrition and related fields. During 1976–77 working relations were strengthened with UNICEF, FAO, IBRD, and bilateral agencies interested in nutrition. Collaboration began with the new United Nations University. Cooperation with these and other agencies included the organization of joint expert committee meetings, consultations, workshops and other scientific meetings, the establishment of interagency working groups on specific subjects, and the organization of joint missions for technical collaboration with countries. Collaboration also extended beyond the United Nations system to bring expertise from many scientific disciplines into international work. New institutional arrangements included the creation of an ACC Sub-Committee on Nutrition with a permanent secretariat and an advisory group, which will replace the former Protein-Calorie Advisory Group.

6.23 In any country, nutrition of the population has to be considered within national development strategies. Each aspect of planning and programming for nutrition improvement is a component of socioeconomic development plans, and approaches must vary according to the particular national conditions, resources and opportunities. The ninth report of a joint FAO/WHO Expert Committee on Nutrition, dealing with food and nutrition strategies in national development, was published in 1976.[2] This subject was further debated in the Technical Discussions

[1] World Health Organization. *Female sterilization: Guidelines for the development of services.* Geneva, 1976 (WHO Offset Publication No. 26).

[2] WHO Technical Report Series, No. 584, 1976.

held during the sessions of the Regional Committee for South-East Asia held in 1976 ("Development of national nutrition programmes, with special attention to the vulnerable sectors of the population"), the Regional Committee for Africa in 1977 ("The importance of nutrition in socioeconomic development"), and the World Health Assembly in 1977 ("The importance of national and international food and nutrition policies for health development"). The Health Assembly adopted a resolution (WHA30.51) which requested that a higher priority be given to nutrition-oriented programmes in Member States and in the Organization, and that WHO take specific actions to strengthen the programme of cooperation in this field with its Member States.

6.24 In the Region of the Americas, the Interagency Project on National Food and Nutrition Policy, the Institute of Nutrition of Central America and Panama, and the Caribbean Food and Nutrition Institute cooperated with Barbados, Bolivia, Brazil, Chile, Colombia, Cuba, Guatemala, Honduras, Jamaica, Nicaragua, Paraguay and Trinidad and Tobago in developing food and nutrition policies. In other regions, coordination for technical cooperation with countries in this field is arranged on an *ad hoc* basis; for example, WHO works with UNICEF and FAO in Senegal and Malaysia, and with IBRD in Indonesia.

Nutritional surveillance

6.25 The need to establish a nutritional surveillance system is felt by many countries; such a system is seen as providing an early warning of disasters or as a basis for planning and evaluating programmes. A nutritional surveillance system is an important component of any action programme and WHO is making efforts to cooperate with countries in extending its use.

6.26 The report of a joint FAO/UNICEF/WHO Expert Committee on the methodology of nutritional surveillance was published in 1976,[1] and a working group of the three organizations was established to coordinate technical cooperation with countries. Guidelines for the presentation and use of height and weight data of children, as well as anthropometric reference data for international use, were developed in collaboration with others working in this field. The significance and validity of certain indicators are being tested in WHO-supported field studies in India, Israel, Italy and Yugoslavia. Developmental work on national systems of nutritional surveillance was undertaken in the Philippines and Sri Lanka. In Africa, nutritional status assessments were made in Angola, Botswana, Cape Verde, Congo, Kenya, Mauritania, Mozambique, Nigeria, Rwanda, Senegal, Uganda, United Republic of Tanzania, Upper Volta and Zaire. In Colombia, the Organization cooperated in developing a model national food and nutritional surveillance system using existing information being collected in different sectors for other purposes.

Nutrition in health services

6.27 Nutrition is not an independent activity within the health sector but must be closely linked or integrated with other related programmes such as maternal and child health, family planning, prevention and treatment of diarrhoeal diseases, control of infectious diseases, and other elements of basic health services; this is particularly true at the primary level of health care. During 1976–77 the Organi-

[1] WHO Technical Report Series, No. 593, 1976.

zation stressed the importance of integrating nutrition with health services. Three consultations were held, to review national experience or develop guidelines in this respect: in Teheran, Iran, on strategies in nutrition through local health services; in New Delhi, India, on the operational integration of nutrition with family planning programmes; and in Kuala Lumpur, Malaysia, on nutrition in family health. Operational methodology in the delivery of nutrition and nutrition-related activities such as family planning was studied in India, Somalia, Thailand and the United Republic of Tanzania with the support of UNFPA and the International Planned Parenthood Federation. The technical discussions in the South-East Asia Region mentioned above were followed up in 1977 by a regional meeting on nutrition in health services. With the shift of priority to effective intervention as part of the primary health care approach, the Organization began a reassessment of technologies and approaches used in nutrition; many will need to be revised and adapted for use in the home and at the periphery, while new ones will have to be created. One aspect on which work started in 1976–77 was the home preparation of weaning foods from locally available foods; WHO supported field studies on this possibility in India and Sudan. A more systematic approach is required to the whole area of appropriate technologies in nutrition and will be developed in the coming years.

6.28 For many years, nutrition education has been recognized as a major function of the health services in preventing malnutrition. However, the experience of national services in this respect has often been unsatisfactory and the effectiveness of the activity has not been carefully evaluated, particularly in relation to primary health care. In 1977 WHO, in collaboration with UNICEF and FAO, undertook a comprehensive review and analysis of experience in this field. Also, the directors of major international training courses in public health nutrition met in Geneva in 1976 to identify the requirements for specialized personnel, in terms of numbers and capabilities.

6.29 The horrors of natural or man-made disasters are frequently compounded by the consequences of malnutrition; WHO, in collaboration with other agencies, prepared a guide [1] for field workers providing nutritional assistance during disaster conditions.

6.30 In most industrialized countries, nutritional problems are not related to primary undernutrition, but they are of public health significance; studies were carried out on nutritional problems of the elderly in six countries of the European Region, and on problems related to the increasing use of "ready-made foods".

Measures against specific nutritional deficiencies

6.31 Special attention was given to protein-energy malnutrition, nutritional anaemia, vitamin A deficiency and endemic goitre. There is still a very high case fatality rate among children with protein-energy malnutrition; this rate could be substantially reduced with appropriate management. A manual on the treatment and management of severe protein-energy malnutrition was prepared in 1976 and was being tested in different areas in 1977. Support was provided to countries interested in the development of low-cost mixtures for use in programmes for the

[1] Ville de Goyet, C. de et al. *Guide to the management of nutritional emergencies in large populations.* Geneva, World Health Organization, 1978.

prevention of protein-energy malnutrition. Also in 1977, an Expert Consultation was convened jointly with FAO on the use of fats and oils in human nutrition.[1] Another topic of special importance—meeting the nutritional needs of lactating and pregnant women—was considered in the Technical Discussions during the Thirtieth World Health Assembly, mentioned above.

6.32 The control of protein-energy malnutrition, particularly in children, is a complex problem requiring sustained multidisciplinary efforts in the health and other sectors ; in contrast, for the control of some specific nutritional deficiencies there are techniques of proved efficacity that can be applied in the health sector alone. For instance, some countries in Central America were already, with the technical cooperation of the Institute of Nutrition of Central America and Panama, combating vitamin A deficiency by means of sugar fortification. The possibility of using other food vehicles was explored elsewhere. The feasibility and effectiveness of periodic distribution of large doses of vitamin A was examined in Indonesia and the Philippines. With the technical cooperation of WHO, both the World Food Programme and the European Economic Community decided to fortify with vitamin A the skim milk donated for supplementary feeding programmes to countries where deficiency of this vitamin occurs. Applied research to test the feasibility and effectiveness of different approaches in the control of nutritional anaemias was carried out in Burma, Guatemala, India and Thailand ; food fortification and iron supplement distribution were compared. Adequate techniques are already available for the prevention of goitre ; a joint report is being prepared in collaboration with UNICEF, reviewing the latest information on prevalence and on recommended measures for control.

[1] Food and Agriculture Organization of the United Nations. *Role of dietary fats and oils in human nutrition.* Rome, 1978.

Health education

6.33 One of the major objectives of health education is to stimulate people to assume responsibility for their own health care and thereby to promote individual, family, community and national self-reliance in the health field. During 1976–77, as part of their series of joint studies on alternative approaches to meeting basic health needs, WHO and UNICEF carried out a study, "Community involvement in primary health care : a study of the process of community motivation and continued participation". The study sought to present examples of community involvement, to identify elements of individual and community motivation and organization that led to the initiation and maintenance of community-based health activities, and to describe the characteristics of the mobilization and education processes acting from within and from outside the community. Case studies were carried out in nine communities in Botswana, Costa Rica, Indonesia, Mexico, Samoa, Senegal, Sri Lanka, Viet Nam and Yugoslavia. The conclusions justified the renewed interest in the community development approach centred on community participation, and indicated that increased access to education, both informal and formal, has led to greater involvement of people in community activities. The important role played by women in this process was highlighted. The readiness of communities to accept change appeared to have increased greatly since the 1950s, mainly on account of better communications (roads, radio, television, newspapers). Nevertheless, more needs to be known about certain aspects of the process : com-

munity involvement in the totality of the planning process, the importance of traditional decision-making structures, and the nature and extent of both national and international external support.

6.34 With the wider adoption of the primary health care approach, health authorities are calling for stronger and more effective educational activities as part of health development programmes. Many countries are far from being able to meet this need. Also, many policy-makers, planners and programmers regard health education as involving only films, posters, booklets, or other media. This view ignores the fact that health programmes, like other development programmes, aim not only to provide information but also to change behaviour. The technical discussions during the 1977 session of Sub-Committee A of the Regional Committee for the Eastern Mediterranean, on the subject of "Health education with particular reference to the primary health care approach", reviewed many of the lessons learned. A paper entitled "WHO's collaborative research in health education for the promotion of health delivery", prepared for the 18th session of the Advisory Committee on Medical Research in 1976, challenged the universality of the premises upon which everyday practice of health education is based. Similarly, WHO's research activities in health education during the biennium stressed the operational aspects rather than theoretical issues. The research was specific to local situations and therefore ensured the development of the most relevant messages and methods of health education.

6.35 WHO collaborated with countries in all regions to build national capabilities for health education activities. In Afghanistan, Indonesia, Malaysia, Pakistan, Philippines and Sri Lanka, existing services in health education were strengthened, while in Antigua, Qatar, St Lucia and St Vincent, WHO worked on developing such services.

6.36 Health education provides a link between the health system and other sectors. One example is health education in schools, where in recent years the emphasis has been on preparation for future family life. During the biennium, WHO joined with ILO, FAO and UNESCO to develop, with collaboration from UNICEF, UNDP, UNFPA and the International Planned Parenthood Federation, educational components that are completely integrated in rural development programmes, with particular emphasis on family health. An interregional meeting was held in Afghanistan in 1976, and follow-up workshops are to be held at the national level. In 1977 an interdisciplinary meeting was held in Uganda.

6.37 Health education does not work in isolation but as a component of the other health programmes. In the Philippines, a study was begun in collaboration with the oral rehydration project. It aims to identify the factors that influence the community's response to the programme, to ascertain people's perception of diarrhoeal problems, to assess the public image and acceptability of rehydration and to review the nature and scope of health education and its impact on community participation in the health activity. A manual on health education for immunization was prepared and is being tested in several countries. In addition to the work developed in the educational aspects of family planning and maternal and child health, studies were begun on child-bearing and child-rearing practices and their implications for health education in maternal and child health activities. Other work was started on health educational aspects of rural water supply.

Special Programme of Research, Development and Research Training in Human Reproduction

6.38 Although a number of Member States report progress in their family planning programmes, the predominant tone remains one of disquiet. The "pill", the most widely used modern method of contraception, has received wide publicity because of its association with thromboembolism. Nearly as often, questions have been raised to which at present there are no answers (Do hormonal contraceptives cause cancer ? Can intrauterine devices lead to infection and sterility ? What are the risks to subsequent pregnancies from abortion used as a method of birth control ? What is the likelihood that sterilization, in men or women, will lead to psychological disturbances ?). Providing family planning care, particularly in the rural areas of developing countries, is proving very difficult. Even where it is available, acceptance rates are low and discontinuation rates disappointingly high.

6.39 These are genuine problems, most of which cannot be resolved merely by increasing inputs of services or funds; they require research. The total world effort in research on the biomedical and service aspects of fertility regulation is, however, pitifully small: governmental allocations for this field represent only about one per cent of their expenditures on health research, even though family planning is potentially of concern to all couples of reproductive age. The WHO Special Programme of Research in Human Reproduction [1] is acting as a focus for the scant resources available, both technical and financial. It responds to Member States' demands to intensify and internationalize research in this field and to strengthen national capabilities for such research. Its strategy is programme-oriented and aims at providing technologies appropriate to conditions in developing countries. "Technology" is used here to refer not only to methods of fertility regulation but also to their acceptability and service provision, principally at the primary health care level. While placing greatest emphasis on research in fertility regulation, the Programme also includes research in infertility and pregnancy wastage.

Technology for fertility regulation

6.40 The research on technology for fertility regulation has two main aspects: assessing in developing countries the safety, efficacy and acceptability of currently available methods, and conducting research to improve these methods and develop entirely new ones.

6.41 *Safety and effectiveness of existing methods.* Assessment in developing countries of existing methods is needed because on the whole, careful studies of the safety and effectiveness of methods such as the pill, intrauterine devices (IUDs), injectables, periodic abstinence, surgical sterilization and abortion techniques have only been conducted on women in developed countries. The authorities in developing countries are asking to what extent the findings are applicable to healthy women there, given differences in body size, nutritional habits, and reproductive patterns, and what happens when, for instance, the pill, the IUD, or injectables are provided to malnourished women or those with parasitic infestation.

[1] A fuller description of the Programme can be found in *Special programme of research, development and research training in human reproduction, Fifth Annual Report*, November 1976 (WHO document HRP 76.1R Rev. 1) and *Sixth Annual Report*, November 1977 (WHO document HRP 77.3).

6.42 Table 6.2 illustrates some WHO projects that aim to answer such questions.

Table 6.2 Current contraceptive methods: WHO research on safety and effectiveness

Pill trials in healthy women
Pill and lactation
Pill and malnutrition
Pill and parasitic diseases
Pill and cardiovascular diseases
Injectable trials in healthy women
Injectables and lactation
Injectables and malnutrition
Injectables and liver fluke infestation
IUD trials in healthy women
IUDs and anaemia
IUDs inserted immediately post-partum and post-abortion
IUDs and pelvic inflammatory disease
Assessment of current methods of periodic abstinence
Assessment of current surgical and fibroscopic methods of sterilization
Long-term effects of sterilization on menstruation
Psychological sequelae of sterilization
Assessment of different techniques and equipment for abortion
Long-term sequelae of abortion:
— effect on later pregnancies
— infertility

The studies provide results within one to three years that are of immediate applicability to family planning programmes. For example, trials comparing the safety and effectiveness of the different currently available pills, IUDs or injectables give authorities the data on their own population that allow them to decide which drug or device to include in their programmes. The value of carrying out such studies on a multicentre basis came out clearly in 1977 when the data were analysed from a WHO ten-centre trial of currently available injectable contraceptives. Some consistent differences among populations emerged in the incidence of amenorrhoea and intermenstrual bleeding caused by drugs. In addition, discontinuation rates showed that the cultural tolerance of menstrual disturbances varied greatly among populations. Conclusions from the results of other WHO studies have already been incorporated into government policies regarding termination of pregnancy; examples are the selection, for reasons of safety, of vacuum aspiration in preference to dilatation and curettage, and the decision, for reasons of simplicity and economy, to provide outpatient care under local anaesthesia.

6.43 Some authorities in developing countries have hesitated to include any oral contraceptives in their family planning programmes because of the reports of increased risk of thromboembolism in Western women. WHO studies suggest that, in fact, Asiatic women at least may be less prone to this condition. Similarly, since the liver plays an essential part in the elimination of injectable contraceptives from the body, WHO was asked whether their use would be dangerous in populations where liver function might be impaired by parasitic infestation. Field studies conducted on this problem in rural Thailand have so far produced no evidence that injectable contraceptives have a harmful effect on liver function in women with liver fluke infestation.

6.44 Not all findings are as encouraging. IUDs cause increased menstrual blood loss in many women. In developed countries, this loss does not lead to anaemia, but WHO studies show that it leads to iron depletion in populations with malnutrition. The preliminary results of WHO studies in women with borderline malnutrition who use the pill suggest that it may have a deleterious effect on vitamin metabolism. Additional studies are being initiated on these problems because of their considerable public health implications.

6.45 *Improved and new methods.* The search for an "ideal contraceptive" has long been given up by those familiar with the field. What is needed is a wide variety of methods, because in family planning the preferences of the individual play a

vital role. Moreover, the ease with which a given method can be provided depends on the prevailing health service conditions, the level of education, and other local factors. There are also health-related reasons why not just one but a range of methods must be available: some methods lead to side effects in a proportion of cases; some are contraindicated in women with certain diseases or conditions; some appear suitable for women in developed countries but inadvisable, for nutritional or other reasons, for women in the developing world.

6.46 The Programme's approach to meeting these requirements follows three main lines, aiming (1) to make current methods and techniques of fertility regulation safer, more effective, simpler to use and to provide, and more acceptable; (2) to make available to family planning programmes entirely new birth control modalities that, in the opinion of those responsible for running the programmes, would considerably extend acceptance and use, e.g., drugs for men, vaccines, post-coital preparations and abortifacient drugs; and (3) to strengthen in developing countries national capabilities for research in human reproduction and family planning.

6.47 These research and development efforts (see Table 6.3) are longer-term endeavours than the assessment of existing methods, since the development of family planning methods inevitably involves a lengthy step-by-step demonstration of efficacy and safety. The time needed is usually between 10 and 15 years from the identification of a compound to the marketing of a birth control drug.

6.48 These methods are at different stages of development. Some very positive results are already emerging. For example, for long-acting injectable contraceptives, in great demand in many developing countries because of their ease of administration,

Table 6.3 WHO research on improved and new methods of contraception

Paper pill
Longer-acting injectables Biodegradable implants
Hormone-loaded IUDs Post-placental devices
Intra-cervical devices
Vaginal rings
Kits and devices for determination of the fertile period
Chemical sterilization for women
Drugs for abortion (e.g., prostaglandins, plant products)
Post-coital drugs
Pills and injectables for men
Vaccines against pregnancy Vaccines against sperm and ova

the Programme has developed a drug delivery system that releases steroids at a low and constant rate; this should help overcome some of the major side effects caused by currently available preparations. WHO studies have shown that menstrual blood loss can be considerably reduced as compared with pre-insertion levels by the use of entirely new IUDs that release hormones; clinical studies are now starting on hormone-releasing IUDs with a potential ten- to twenty-year life-span. The medicated vaginal rings under development in the Programme can be inserted or removed at will by the user after elementary instruction by an auxiliary health worker. Women who have used them express satisfaction, and if clinical testing continues to give good results, the rings should be available to the public in three to four years.

6.49 The development of simple and accurate "do-it-yourself" kits for determination of the fertile period by women wishing to use methods based on periodic abstinence has required a great deal of complex research. Several substances have been identified in the urine that display a

distinct pattern during the menstrual cycle and upon which simplified techniques for predicting ovulation could be based. The value of prostaglandins as a non-surgical and safer method of second-trimester termination of pregnancy has been shown by the Programme, and this research is almost completed. A prostaglandin suppository was developed and is being tested for use as an outpatient self-administered method for termination of first-trimester pregnancy. This method should greatly lighten the burden on health services where abortion is provided in family planning programmes.

6.50 Other methods such as birth control vaccines and fertility-regulating drugs for men are at an earlier stage of development. The uncertainties are great, but the Programme has nevertheless included some high-risk lines of research where it was felt that a successful outcome would have a very great impact. Planning emphasizes the use of cut-off points, at which decisions are taken on continuation; a number of unpromising lines have already been discontinued.

Infertility

6.51 Much of the Programme's research concerned with the development of fertility-regulating methods has direct application to the diagnosis and treatment of infertility. For example, in the research on immunological methods, sera from infertile couples are being studied for the detection of antibodies that may account for their infertility. Various diagnostic procedures, such as semen analysis, used in the clinical management of infertility have been standardized. Simple means of determining the fertile period are relevant to the treatment of infertility. Other research that relates to infertility includes work on the regulation of male fertility, sequelae of induced abortion, and post-coital methods.

6.52 In addition, during 1976-77 epidemiological research on infertility was conducted, at the request of the Governments, in areas of Sudan and the United Republic of Cameroon, where the incidence of infertility presents a major public health problem. A WHO Collaborating Centre for Research on Fertility Promoting Agents formulated guidelines for the assessment of drugs used in the treatment of infertility.

The health rationale for family planning

6.53 Many studies in developed countries have shown that the best age to have babies is between 20 and 30 years, for both mother and offspring; the child's health and development is best in small families and mothers are at greater risk at high parities. The effects of short pregnancy intervals are less well documented. Authorities in developing countries have asked whether the same relationships are to be found in their own populations where malnutrition prevails, infections are rife and health care is inadequate. Or does the hostile environment exacerbate these associations? If so, the rationale for their family planning programmes would be further strengthened and the women at greatest risk, and hence in greatest need of family planning care, could be identified.

6.54 The results from centres in five of the nine countries involved in a WHO collaborative study aiming to answer these questions (India, Iran, Lebanon, Philippines and Turkey) were published.[1, 2]

[1] Omran, A. R. & Standley, C. C., ed. *Family formation patterns and health.* Geneva, World Health Organization, 1976.

[2] Standley, C. C. & Kessler, A. Impact of fertility regulation on the health and nutrition of mother and child. In: *Symposium on the Mother/Child Dyad—Nutritional Aspects, Uppsala, June 1977* (in press).

Some of the associations found in developed countries were confirmed, while others were not. Where the effects on health of timing, spacing and numbers of pregnancies came out most clearly was in relation to pregnancy wastage and to infant and child mortality. The associations were less evident in the case of child health, growth, development, nutritional status and mothers' health. The results from the centres in the remaining four countries (Colombia, Egypt, Pakistan and the Syrian Arab Republic) are being prepared for publication.

Acceptability and service delivery

6.55 The acceptability to users of different methods of fertility regulation, of their providers and of the service settings is crucial to the success of family planning programmes. Acceptability varies greatly from population to population. The importance of service research is being increasingly stressed by the World Health Assembly. This type of research is particularly relevant to family planning, which is a relatively new endeavour and poses the challenge of continuous coverage of a substantial part of the population. Table 6.4 shows the main lines of acceptability and service research being undertaken in the Programme.

6.56 Data are becoming available on consumers' and potential consumers' attitudes to methods. For instance, research on the acceptability of various attributes of existing and potential male methods demonstrated that the development of pills or injectables for men would considerably extend the practice of family planning. Preliminary results from a study on women that explored preferences among the oral, intravaginal and parenteral routes of administration showed that a method's effectiveness, side effects and ease of use were perceived as being more important than the route of administration. In 1978 the scope of acceptability research will be broadened to include a wider range of psychosocial issues, such as general attitudes and beliefs about family planning.

Table 6.4 Contraception: research by WHO on acceptability and service

General issues of acceptability:
— routes of administration
— male methods
— attitudes to menstruation
Acceptability of specific methods:
— injectables
— vaginal rings
— vaginal prostaglandin suppositories
— paper pill
— steroids for men
Method, personnel and service factors affecting choice and continuation of use of pills, IUDs, injectables
Use of non-physicians for providing:
— pills, IUDs, injectables
— methods based on periodic abstinence
— male sterilization
— female sterilization
Supervision by non-physicians
Use of different service outlets in urban and rural settings
Combination of family planning with other aspects of maternal and child health care

6.57 Of basic importance to the planning of services are studies on factors that affect a population's choice of method and determine continuation of use. Clear-cut differences are emerging between the methods preferred in different countries and by different populations (urban and rural) within countries. This information assists those who have to make programme decisions on the overall combination of methods to be provided, personnel and training requirements and the logistics of supply.

6.58 In view of the drastic shortage of physicians in developing countries, field studies have been undertaken on the use of other categories of health personnel to provide family planning methods. These

studies indicate, for example, that midwives, given proper training, encounter little difficulty in acquiring the knowledge and skills required to insert IUDs. The training manuals, checklists and record forms developed for this research have already been requested by family planning authorities. More innovative studies suggest that theatre nurses can be trained to perform female sterilization, and medical students to carry out vasectomy. In addition, the scope of service research was broadened in 1977 at the request of governments to cover more general service issues, such as integration of family planning with other services in primary health care.

National self-reliance in research

6.59 A major effort by the Programme, in cooperation with national authorities, is devoted to building up self-reliance in developing countries for research on fertility regulation, through the strengthening of their institutions and through a research training effort that is now the largest in the field (Table 6.5). The aim is to develop resources for national family planning programmes to carry out research, adapt technology, interpret advances made elsewhere, and permit the full contribution to the field of scientists from developing countries. This institution-strengthening involves much more than technical and financial inputs by WHO : it is a "learning by doing" process in which the developing countries' institutions are actively participating in and contributing to the international research effort.

6.60 Core support (for equipment, supplies and salaries) to help build up or reinforce a research nucleus assured of some continuity of support was given to a network of collaborating centres in Argentina, Brazil, Chile, Cuba, Egypt, India (3 centres), Mexico (2), Nigeria, Pakistan, Philippines, Republic of Korea, Singapore, Thailand (2), Tunisia, Yugoslavia and Zambia. The centres, as well as many other institutions in developing countries, participate in Task Force projects, for which they also receive support in the form of equipment, supplies and salaries. The Task Forces are one of the main mechanisms for research and development in the Programme and bring together into teams scientists from different institutions, countries and disciplines to plan and implement research on different approaches to fertility regulation and on their acceptability and service delivery.

6.61 Manpower resources were strengthened in several ways. In addition to funding posts, the Programme provided the assistance of consultants, particularly in the training of laboratory personnel. In 1976–77, about 100 research training

Table 6.5 Strengthening research capabilities

Core and other support to nuclei for research	
WHO Collaborating Centres in Human Reproduction:	
— network of centres for clinical and field research	salaries, equipment, supplies, consultants, training
— research and training centres	
Project-related strengthening of capabilities (as above)	
Research training grants	
Research training courses	
Quality control and standardization of laboratory methods	
Small supplies and spare parts	
Journal subscriptions and books	
Technical meetings	
Publications [a]	

[a] Proceedings of meetings supported by the Programme:

Cinader, B. & de Weck, A., ed. *Immunological response of the female reproductive tract.* Copenhagen, Scriptor, 1976.

Harper, M. J. K. et al. *Development of vaccines for fertility regulation.* Copenhagen, Scriptor, 1976.

Harper, M. J. K. et al., ed. *Ovum transport and fertility regulation.* Copenhagen, Scriptor, 1976.

Boettcher, B. et al., ed. Auto- and iso-antibodies to antigens of the human reproductive system, *Acta. pathol. microbiol. scand.*, suppl. 258 (1977).

Diczfalusy, E., ed. *Regulation of human fertility.* Copenhagen, Scriptor, 1977.

grants for training abroad, mostly of a year's duration, were awarded and several training courses were organized, for example on clinical trial methodology and on the standardization of laboratory methods.[1] A special effort was made to extend to the centres expertise in social science and epidemiology.

6.62 Laboratory facilities for the radioimmunoassay of sex hormones and clinical chemistry were strengthened in centres in Cuba, Egypt, India (3 centres), Republic of Korea and Thailand to enable them to conduct the pharmacological and metabolic studies needed in the assessment of fertility-regulating methods. A similar build-up is planned for the centre in Tunisia. Primate facilities were strengthened in Argentina and India. To ensure the comparability of results in multicentre trials and to help centres monitor their own assay performance, all centres with laboratory facilities participate in the programme of standardization and quality control of laboratory methodology, which now covers 143 laboratories in 44 countries.

6.63 A few institutions in developed countries were strengthened, primarily to increase their capacity for research training and for collaborative research with developing countries, including the multicentre assessment of fertility-regulating methods. These centres are in Australia, Canada, Hungary, Sweden, the United Kingdom, the USA, the USSR and Berlin (West).

International scope of the Programme

6.64 Scientists from 69 countries, of which 45 are developing countries, are involved in the Programme, either as investigators, advisers, trainees, or in other capacities. The Programme was mainly supported in 1977 by contributions to the Voluntary Fund for Health Promotion from Canada, Denmark, Finland, Norway, the United Kingdom and UNFPA.

6.65 Coordination with a large number of other agencies is achieved through a variety of mechanisms, ranging from joint planning and conduct of projects to consultation on technical issues. Fifteen governmental and nongovernmental agencies with active programmes of research in fertility regulation were invited to a meeting convened by WHO in September 1977. They represented almost the entire public sector investment in research on the biomedical and service aspects of family planning. The meeting reviewed the agencies' priorities, strategies, and current and planned activities.

[1] See also page 82.

Chapter 7

Health Manpower Development

7.1 DECISIONS taken by the World Health Assembly in 1976 confirmed the preparatory work of many years and heralded a new role for WHO in its relationship with its Member States in the field of health manpower development (resolution WHA29.72). The main thrust of the new programme is to bring together the planning, training ("production") and management aspects of manpower development into an administrative and functional whole geared entirely to the development of health services, the latter being structured to meet the real health needs and demands of entire populations. The concept of integrated development of health services and manpower development was well received in countries, and steps are being taken in several of them to reform the administrative structure of health services and health manpower development and break down barriers between education and service.

7.2 Within the Organization this policy brought about important changes, promoting cooperation among all sectors concerned with the development of health services and health manpower. The result is that when WHO meets countries' requests for cooperation in their national health planning, the preparation of manpower is an integral part of the plan.

7.3 The concept of integration was embodied in the Sixth General Programme of Work and endorsed by the Health Assembly in resolution WHA29.72. However, despite their general acceptance of the principle of giving priority to universal health coverage, most governments do not yet appear to be in a position to take the political decision to initiate the changes in their health service orientation and expenditure which such a priority requires.

7.4 A significant step during the biennium was the formulation of a global WHO medium-term programme for health manpower development (1978–83) on the basis of the Sixth General Programme of Work. This programme clarifies the main problems that countries face in relation to health manpower planning, production and management, and proposes a step-by-step process whereby WHO can collaborate with Member States in their efforts to tackle these problems systematically and to achieve well-defined, and whenever possible quantified, targets.

7.5 Some aspects of the medium-term programme are already starting to become operational in several countries—for example, the fundamental task of training and retraining teachers of all categories of health worker. In 1971 WHO provided fellowships for a limited number of experi-

enced health teachers to study new approaches to education in the health sciences at a WHO collaborating centre in the USA (Center for Educational Development, Illinois University Medical College, Chicago). The fellows and other highly trained personnel concerned subsequently took responsibility for inaugurating eight regional centres in five WHO regions. Students from the regional centres are now returning to their countries and the first national teacher training centres have already been established in India, the Philippines and the Republic of Korea. In carrying out this programme WHO has given particular attention to developing new materials to assist learning, to preparing new approaches to evaluation, including the instruments required for its accomplishment, and to promoting research in new methods of education and communication. The programme provides an opportunity for teachers to learn in their own countries how to facilitate students' learning and how to prepare learning programmes that are more relevant to local health needs and demands.

7.6 During 1976–77 the Organization made progress in promoting courses in modern principles and processes of education and awarded many fellowships for the study of education in the health sciences for nurses, doctors, and environmental and other health workers, particularly those concerned with the training of auxiliaries and indigenous practitioners. It supported institutions experimenting with new curricula and organized courses in management and workshops on the production and use of low-cost educational materials, and established a centre in Geneva for educational technology

7.7 The Organization prepared a long-term international programme of training in health management and held a meeting of national managers in Geneva in October 1977 which discussed a plan of action to cooperate with Member States in training their own health managers.

7.8 The study on the international migration of physicians and nurses was completed;[1] it provides a description of this complex and changing problem and suggests a useful range of options for action on the different situations in which Member countries find themselves.

7.9 A detailed proposal was elaborated in cooperation with ILO on the work and living conditions of nurses,[2] which formed the basis of an international convention on this subject adopted by the ILO Conference in 1977.

Production of health manpower

Health services and manpower development

7.10 Health services and health manpower development suffer from the relatively low status accorded to health in national plans for socioeconomic development. The frequent absence or inadequacy of national health manpower policies results in the absence of well-conceived national health manpower systems forming an integral part of existing health systems. Recognizing this problem, the World Health Assembly noted in 1976 that the remedy "requires a new and vigorous effort involving the concept of the unity of medical science and health activities and a systematic and integrated approach to health manpower planning, production and management directly related to the assessed needs of populations" (resolution WHA29.72). A consultation of experts in

[1] The results of this study are to be published by WHO. See also page 76.

[2] International Labour Organisation. *Employment and conditions of work and life of nursing personnel.* Geneva, 1976.

1976 reviewed experience with several forms of coordination between development of health services and development of health manpower. A strategy for national action is being promoted, and steps are being taken to share country experiences.

7.11 In the African Region, activities in the field of health services and manpower development took the form of consultation among Member countries on the development and application of mechanisms that put the concept into practice.

7.12 In 1976 PAHO/WHO launched the Latin American Programme of Educational Development for Health, funded by the Kellogg Foundation, which aims at expediting the experimental use of teaching-service integration in Latin American countries by enlisting the support of national coordination groups (known as Health Education Research and Development Nuclei). These latter serve as the initial focal points for coordination between service and training institutions ; during 1976–77 support was given in their development in Bolivia, Brazil, Costa Rica, the Dominican Republic, Ecuador, Honduras, Mexico, Nicaragua, Paraguay, Peru and Venezuela.

7.13 In the South-East Asia Region, representatives of the health and education fields met in 1977 to discuss the Region's medium-term programme for health manpower development.

7.14 In the European Region, an inter-country working group on country health programming as a determinant of health manpower development was convened in Berne, Switzerland, in April 1977.

7.15 At the 10th CIOMS Round Table Conference in Ulm, Federal Republic of Germany, in July 1976 on health needs of society, organized in cooperation with WHO, participants stressed the need for cooperative planning and integrated development of health services and health manpower, and drew attention to the reforms needed in aligning the medical curriculum with the needs of the health services.[1]

Health manpower planning

7.16 As a result of poor coordination between planning for health manpower and planning for other sectors, there has been (*a*) little direct relationship between those planning for and managing the health services and those responsible for the training of health manpower, (*b*) a lack of planning for the training of new categories of health personnel required to meet recognized health care needs, and (*c*) a lack of clear definition of the functions and interrelations of the various categories of personnel engaged in the delivery of health care.

7.17 A publication completed on the principles and methods of health manpower planning [2] describes the experience accumulated during the last decade, the difficulties most frequently encountered in the conduct of the health manpower planning process, and the most relevant techniques that can be used, with their benefits and limitations.

7.18 In the Region of the Americas, the Organization cooperated with several health ministries on theoretical and practical aspects of manpower planning ; organization of manpower units, preparation of their staff, and management of the coordination process ; and the participation

[1] Gellhorn, A., Fülöp, T. & Bankowski, Z., ed. *Health needs of society : A challenge for medical education.* Geneva, 1977 (published by WHO on behalf of CIOMS).

[2] Hall, T. L. & Mejía, A., ed. *Health manpower planning : Principles, methods and issues.* Geneva, World Health Organization, 1978.

of various agencies in policy formulation and development plans.

7.19 In the Western Pacific Region, WHO cooperated with the Lao People's Democratic Republic to draw up plans for the period up to 1986 to provide manpower to fill gaps in the remodelled health services.

Health manpower management

7.20 The problems experienced in health manpower management include: the uneconomic utilization of health staff, the imbalance between different disciplines, categories and levels, and the inequities in geographical distribution, aggravated by the migration of qualified staff; and inadequate management training for top-level and middle-level health administrators who are responsible for the planning, management and evaluation of health programmes. Health manpower management in the context of health services and manpower development covers such questions as options for policies to attract and retain health manpower in deprived areas, career schemes, moral and financial incentives, and the continuous evaluation (monitoring) of individual and health team performance, both in relation to community needs and as a basis for planning continuing education.

7.21 A programme to improve the management skills of health workers at all levels was initiated, consisting of the development and strengthening of a network of institutions. In order to plan concerted global action to meet the problems of health manpower management, a consultation was held in Geneva in October 1977 on training in health management. This was followed by a workshop on international collaboration in training and research in health administration, to identify and consider various operational issues impinging on the development of international collaboration, technical cooperation and mutual support systems for training and research in health administration.

7.22 The European Region took action in this field by organizing two working groups on the education of managers in health services, one in Lysebu, Norway, in 1976, and one in Dusseldorf, Federal Republic of Germany, in 1977.

7.23 The English-language and Russian-language training programme for public health administrators continued at the Central Institute for Advanced Medical Studies, Moscow, USSR, in collaboration with WHO; during the academic years 1975–76 and 1976–77, 71 participants attended the courses and received the English-language diploma of Master of Social Medicine or its Russian-language equivalent. In May 1977 the fourth scientific meeting for teachers and alumni of these courses, attended by 208 participants from 15 countries, was organized in Prague in collaboration with WHO.

7.24 In the Eastern Mediterranean Region an itinerant workshop on management was organized for deans of medical schools as part of a strategy aimed at making medical education more relevant to the needs of populations.

7.25 Progress was made, in collaboration with UNESCO, in achieving international recognition of qualifications and of work experience. Following the convention of Caribbean countries on this subject, similar conventions were proposed for Arab and European countries.

Health coverage and new categories of health personnel

7.26 Inadequate numbers and quality of health manpower continue to be the most

serious impediment to a satisfactory health coverage of the world's population. This situation is aggravated by undue emphasis on the conventional training of certain categories of health personnel (particularly physicians and nurses) at the expense of other categories; hesitation in furthering the "health team" concept, both in training and in service ; and a failure to make use of the best elements of traditional medicine. As a consequence, very large population groups in the developing countries have negligible access to health services.

7.27 During 1976–77 the Organization gave high priority to a rapid, balanced increase in numbers of health personnel and to strengthening the facilities required for this purpose. In particular, it promoted the development of health personnel who are likely to provide primary health services, particularly in underserved communities. A health team approach was formulated, with emphasis on the training and use of auxiliaries and community health workers, including, where appropriate, those practising traditional medicine, in addition to the existing categories of health professionals.

7.28 An expert committee on the training and utilization of auxiliary personnel for rural health teams in developing countries was convened in 1977 to analyse the situation and make recommendations on this subject.

7.29 A working guide entitled *The Primary Health Worker* [1] was published in English and French ; it contains guidelines for training and for adaptation to local circumstances. Adaptations of the guide made in Ghana, Iran, the Lao People's Democratic Republic, Mozambique, Peru and Sudan were translated into local languages. Also published were directories of schools for medical assistants, dental auxiliaries and medical laboratory technicians.[2]

7.30 Many countries of the African Region have decided to use the services of traditional health practitioners in rural areas, after suitable training. In addition, eight countries have now institutionalized the retraining of traditional birth attendants ; a study group on their training and supervision was convened by the Regional Office. This training, together with the training of village health workers and maternal and child health auxiliaries, will contribute to the primary health care approach.

7.31 In some countries in the Western Pacific Region, such as Fiji and the Lao People's Democratic Republic, medical assistants are now trained and used as intermediate-level health workers. This is also the case in other regions (Africa, South-East Asia, Eastern Mediterranean)—in Bangladesh, for instance, where medical assistants were recently introduced. In Papua New Guinea, the functions of the aid-post orderly are being reviewed with the aim of making him a more effective primary health care worker.

7.32 Nursing/midwifery personnel were increasingly involved in the training of community health workers in many countries, for instance, in Honduras, India, Indonesia and Upper Volta. In the Lao People's Democratic Republic and in the Philippines, they were engaged in the training of primary health care workers and

[1] World Health Organization. *The primary health worker : Working guide, guidelines for training, guidelines for adaptation (experimental edition)*. Geneva, 1977.

[2] World Health Organization. *World directory of schools for medical assistants, 1973*, Geneva 1976 ; *World directory of schools for dental auxiliaries, 1973*, Geneva, 1977 ; *World directory of schools for medical laboratory technicians and assistants, 1973*, Geneva, 1977.

traditional birth attendants while at the same time fulfilling some supervisory functions.

Curricular reform

7.33 Curricula and teaching methods are often not suited to the effective team training of health workers to meet community health needs. Educational programmes are primarily directed towards institutional curative care rather than to health promotion, prevention and rehabilitation for the entire population. Alternative approaches being used in training health manpower of different types and in different settings, particularly with community orientation, were embodied in a publication which describes, and offers comments on, several educational programmes aimed at ensuring relevant, effective and efficient educational processes.[1]

7.34 A start was made on studying ways in which basic curricula in nursing education could be reshaped to become more relevant to local conditions and produce staff oriented towards work in the field of primary health care. In accordance with the World Health Assembly's decision in May 1977 on the strengthening of the training of nurses in primary health care (resolution WHA30.48), strategies and approaches were formulated, and coordinative action was undertaken with regional offices to promote collaboration with countries wishing to effect the required changes.

7.35 In the African Region, programmes are being designed on the basis of well-defined duties and taking into consideration available supervisory structures and the composition of health teams. As a result, about 30 categories of health auxiliaries have so far been trained. A meeting of regional experts on the problems of health teams was convened in 1977. Training in environmental health sciences for sanitary engineers and sanitarians was also supported in five country and three intercountry programmes.

7.36 In the Region of the Americas, efforts to promote the training of technical and auxiliary health personnel were intensified, and auxiliary training centres in Bolivia and Ecuador were provided with teaching materials and equipment. A Spanish version of a short WHO guide for teachers of health auxiliaries was published.[2] Cooperation with Member countries in the field of medical education consisted mainly of supporting individual medical schools in improving their academic programmes. These activities took the form of participation in curriculum revision and the design of interdisciplinary research programmes. In January 1976, in collaboration with the Pan American Federation of Associations of Medical Schools, the Organization arranged a meeting of Latin American specialists at Caracas, Venezuela, to establish principles for developing medical education in Latin America and the Caribbean area.[3] Efforts were made to strengthen teaching methods by introducing the integration of teaching specialties. Examples of this approach are the programme for the strategic training of health personnel in Brazil and three projects for manpower development in the Dominican Republic, Honduras and Nicaragua. In the Latin

[1] Katz, F. M. *Personnel for health care: Case studies for educational programmes.* Geneva, World Health Organization, 1978 (Public Health Papers, No. 68).

[2] Wakeford, R. E. *Métodos didácticos para un aprendizaje eficaz: Guía breve para profesores de auxiliares de salud.* Washington, DC, Organización Panamericana de la Salud, 1976 (Publicación Científica No. 327).

[3] Pan American Health Organization. *First meeting on basic principles for the development of medical education in Latin America and the Caribbean area: Final report.* Washington, DC, 1977 (Scientific Publication No. 341).

American countries the training of staff especially equipped to participate in coverage extension and primary care activities is being reinforced by a reformulation of functions and a better utilization of the various categories of existing health personnel. Emphasis is being placed on expanding the role of nurses, with the aim of using them in primary health care services. Some countries now include training for these functions in the basic curricula of their nursing schools. In other countries there are plans to revise curricula to include the training of nurses in family health care.

7.37 In the South-East Asia Region the review of curricula for various categories of nurses continued, particularly in Bangladesh, Burma and Thailand. An intercountry workshop on community-oriented nursing education programmes was held with the participation of senior educators, followed by a meeting of decision-makers who could implement the changes in the various countries of the Region. In addition, teaching/learning materials were being planned that would be useful in such a revised educational programme. The trend towards making medical education community-oriented continued in almost all countries of the Region, and the attention of governments was drawn to a suggested curriculum for strengthening the teaching of community medicine, based on a study of the teaching of this subject in five countries. WHO also cooperated in developing new curricula for sanitary engineers in Burma, India, Indonesia, Sri Lanka and Thailand.

7.38 In the European Region, technical cooperation in projects on medical and allied health education was provided in Algeria, Poland and Spain. Projects were continued in Belgium, Iceland, Italy and Turkey, and started in Portugal.

7.39 In the Western Pacific Region, WHO cooperated with the Gilbert Islands, New Hebrides, Samoa and Tonga in the development of their nursing curriculum programmes. Almost all countries of the Region now have a basic nursing education programme.

Teacher training

7.40 At present there is a shortage of teachers of health personnel who are competent both in educational planning and processes and in their own specialty. Moreover, professional groups often oppose radical changes in the education and training of health staff, even though such changes are based on established service needs.

7.41 In October 1976, the directors of seven regional teacher training centres met in Shiraz, Iran, with outstanding experts in the field to discuss the implications of the future expanded role of the regional and national centres (which will undertake multiprofessional instead of single-professional programme activities) and their potential function in the mechanisms for health services and manpower development. Agreement was reached on continuing collaboration, communication, the exchange of educational materials, and collaborative efforts in the organization of training and research programmes.

7.42 The African Region paid particular attention to the training of teachers of auxiliaries by experimenting in the use and application of new teaching methods in Kenya and the United Republic of Tanzania.

7.43 The Latin American Centres for Educational Technology in Health in Rio de Janeiro, Brazil, and Mexico City concentrated on the training of instructors in pedagogy.

7.44 In the South-East Asia Region, the Regional Teacher Training Centres in Peradenya, Sri Lanka, and Bangkok, Thailand, continued to conduct training courses. Several intercountry training courses have now resulted in the introduction of new teaching methods and educational programmes in various countries. For example, two medical institutions in Bangladesh started units of medical education, and a national teacher-training centre was established at the Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry, India.

7.45 In the European Region, two studies were initiated—one on the specific problems of teacher-training and the other on educational measurement for teachers of health professionals.

7.46 In the Eastern Mediterranean Region, several medical schools in Egypt, Pakistan and Sudan established medical education departments or units, which are now becoming self-reliant in planning and conducting teacher-training activities.

7.47 In the Western Pacific Region, the Regional Teacher-Training Centre in Sydney, Australia, expanded its activities, and a total of 250 persons from 120 institutions in the Region have attended courses and workshops organized by the Centre since its inception in 1972.

7.48 A revision of the *Educational Handbook for Health Personnel* [1] was issued in English and French and was translated into eight other languages by interested Member States. This publication also incorporated a guide for teachers on the organization of short educational workshops that has been field-tested and translated into four languages.

7.49 Efforts were made to strengthen teacher competencies in midwifery education programmes and a monograph for nurse/midwife teachers was published by a WHO collaborating centre in 1977; it describes the process of designing modules and gives 59 examples of modules in midwifery and child care, including family planning.[2] The use of the modular approach enhances self-directed learning and could solve problems associated with shortage of qualified teachers. The Organization supported teacher-training workshops on a modular midwifery curriculum, one in the Eastern Mediterranean Region and another in the Western Pacific Region, and also a DANIDA-sponsored intercountry course on modern methods of teaching nursing in the Eastern Mediterranean Region.

Teaching/learning materials

7.50 There is an overall and serious shortage of teaching and learning materials for all categories of health workers, including textbooks and manuals, audiovisual media, self-instructional packages and other innovative ways of facilitating learning. During the biennium WHO produced resource materials for learners, teachers, and those responsible for educational programmes. A list of reference materials for health auxiliaries and their teachers was published in 1976.[3] Work proceeded on the revision of an experimental manual of basic medical laboratory techniques, with the incorporation of comments received from regional offices and some 70 schools.

[1] Guilbert, J.-J. *Educational handbook for health personnel.* Geneva, World Health Organization, 1977 (WHO Offset Publication No. 35).

[2] British Life Assurance Trust Centre for Health and Medical Education. *Facilitating teaching—learning with modules: An approach for nurse/midwife teachers.* London, 1977.

[3] World Health Organization. *Reference material for health auxiliaries and their teachers.* Geneva, 1976 (WHO Offset Publication No. 28).

7.51 The African, South-East Asia and Eastern Mediterranean Regions began to carry out national needs and resources surveys on teaching/learning materials. A meeting of deans and directors of university centres for health sciences was convened to assess the relevance of available teaching materials. In the Eastern Mediterranean Region, a survey revealed the extreme shortage of suitable teaching/learning materials in Jordan and Sudan, particularly for non-physician education; this finding stimulated a major effort in the Region to improve the availability of resources for students and teachers.

7.52 In the Americas, a regional programme of continuing education was drawn up for the purposes of evaluating needs for teaching/learning materials and resources, and establishing action plans in eight Latin American and Caribbean countries. The medical and nursing textbooks programmes continued to provide sources of low-cost learning materials for students in the Region; there are plans to extend this programme to cover dentistry, veterinary medicine and sanitary engineering.

7.53 In accordance with the World Health Assembly's decision to give special emphasis to the research and training programmes in tropical and parasitic diseases, a start was made on the production of slide sets with texts on parasites, and a slide bank on tropical medicine was established. The first sets on schistosomiasis and malaria were made available for distribution, in slide or microfiche format and with accompanying texts.

7.54 In the quest for newer and more effective learning tools, an improved patient management process using the flow-chart approach was developed; the intention is to provide intermediate-level health staff and peripheral health workers, such as traditional birth attendants and primary health care workers, with the skills to undertake essential promotive, preventive and curative primary care services. The flow-charts are simple guidelines covering specific diagnostic and management techniques. For the midwife, a set of flow-charts for obstetric emergencies and antenatal care will be tested for adaptation to countries with different cultures and languages. The flow-chart system will help auxiliary health and midwifery personnel to effect safe and rational patient management in the absence of supervision and in spite of the many constraints in primary health care work.

7.55 In the African Region cooperation with Guinea-Bissau in providing primary health care in villages took the form of supplying posters depicting seven major health problems, for the training of illiterate village health workers. The same images were printed on labels for identifying medicaments supplied in "village pharmacies". In addition, eight manuals were translated into Portuguese for use by the health team as training and reference works.

7.56 In the field of educational technology, the Latin American Centre for Educational Technology in Health in Rio de Janeiro, Brazil continued the development of educational research and training systems. An audiovisual production unit was installed in 1976. During the year, projects on the development of self-instructional techniques and large-scale training of health personnel were completed. In 1977, activities were concentrated on the adaptation of technology to local conditions, and on the development of alternative training systems, including the development of instruction programmes in the educational and health sectors, using small computers. Thus, the Centre's present activities are concentrating on research and

development projects and the setting up of mechanisms for transferring knowledge acquired to other training institutions.

7.57 The project on the use of nonverbal communication in disseminating health messages in developing countries with different languages and cultures progressed to the implementation phase. A story-board on immunization in a slide-tape version was prepared and tested in three countries. Based on the results of these trials, an animated film was produced and tested in Egypt in both urban and rural areas, prior to extensive use as a health education instrument in the Expanded Programme on Immunization. A bibliography of extracts from the literature on nonverbal communication media was prepared in a limited number of copies for field testing.

7.58 The European Region compiled a workbook on the nursing process and collected the data for another on the organization and management of nursing/midwifery services.

7.59 In the Western Pacific Region equipment, reference books and bibliographical tools were provided for expanding the capacity of the Central Medical Library in Viet Nam to produce documents and abstracts in Vietnamese.

Deployment of health manpower

Continuing education and fellowships

7.60 There is a general lack of provision for the continuing education of all categories of staff as an integral part of the health care and educational systems. There is also little provision for retraining personnel already in service. WHO developed post-graduate training programmes in various disciplines. The first post-graduate course in public health in French was organized by the African Region, where post-basic nursing courses also continued to be offered in Luanda.

7.61 In the European Region, three studies were initiated—one on specialized training in relation to community health needs, excluding hospitals, another on training patterns for public health medical officers, and a third on principles and methods of quality control in health care as a basis for planning continuing education programmes relevant to service needs.

7.62 During the seventh meeting of directors of schools of public health from the African, South-East Asia, Eastern Mediterranean and Western Pacific Regions, which took place in Teheran, Iran, in 1977, postgraduate programmes and schools of public health were re-examined, in particular as regards their contribution to the realization of the integrated health services and manpower development approach and the development of primary health care services. A new curriculum was prepared for the course in English for a Master's degree in public health offered at the School of Public Health in Teheran.

7.63 An important part of WHO's activities in continuing education is the fellowship programme, most of the functions of which have been decentralized to the regional offices for some years. This arrangement ensures that awards are adapted to countries' needs and that fellowships are efficiently and economically administered. During the period January 1976–June 1977 the Organization awarded 4247 fellowships for study (Table 7.1) and during the period January–December 1976 2540 fellowships were awarded for participation in meetings or other educational activities (courses, seminars or workshops) organized by WHO.

Table 7.1 Distribution of fellowships, by subject of study and by region, January 1976–June 1977

Subject of study	Region						
	Africa	The Americas	South-East Asia	Europe	Eastern Mediterranean	Western Pacific	Total
Public health administration	90	100	62	54	60	25	391
Hospital and medical care administration	6	12	8	9	18	14	67
Construction of health institutions	—	5	—	2	1	2	10
Medical librarianship	—	13	2	—	7	—	22
Subtotal	96	130	72	65	86	41	490
Environmental sanitation	66	44	126	172	45	71	524
Housing and town planning	1	—	—	1	1	—	3
Food control	4	19	5	13	13	12	66
Subtotal	71	63	131	186	59	83	593
Nursing and midwifery	53	36	51	6	62	34	242
Public health nursing	110	16	4	1	4	16	151
Medical social work	1	—	—	2	—	—	3
Subtotal	164	52	55	9	66	50	396
Maternal and child health	12	63	72	54	44	32	277
Paediatrics and obstetrics	3	20	46	9	23	10	111
Subtotal	15	83	118	63	67	42	388
Mental health	3	36	12	18	15	12	96
Health education	60	8	34	3	3	11	119
Occupational health	1	6	17	15	7	19	65
Nutrition	2	39	13	1	9	12	76
Health statistics	3	35	15	23	21	15	112
Dental health	15	20	6	7	17	45	110
Rehabilitation	2	18	20	7	24	9	80
Control of pharmaceutical and biological preparations	9	8	30	10	50	20	127
Subtotal	95	170	147	84	146	143	785
TOTAL — HEALTH ORGANIZATION AND SERVICES	441	498	523	407	424	359	2 652
Percentage	**77**	**61**	**61**	**73**	**49**	**63**	**62**
Malaria	1	8	32	—	50	31	122
Sexually transmitted diseases	—	7	10	—	3	5	25
Tuberculosis	2	22	19	2	16	17	78
Other communicable diseases	36	63	58	18	50	16	241
Laboratory services	14	50	56	47	59	23	249
Chemotherapy, antibiotics	—	2	—	2	—	3	7
TOTAL — COMMUNICABLE DISEASES	53	152	175	69	178	95	722
Percentage	**9**	**18**	**20**	**13**	**21**	**17**	**17**
Surgery and medicine	10	4	20	9	30	5	78
Anaesthesiology	7	1	9	9	18	25	69
Radiology	12	2	8	6	16	16	60
Haematology	—	2	3	2	11	4	22
Other medical and surgical specialties	9	12	48	35	46	16	166
Subtotal	38	21	88	61	121	66	395
Basic medical sciences	23	6	19	11	25	14	98
Medical and allied education	1	146	53	8	94	21	323
Undergraduate medical studies	18	—	2	—	23	14	57
Subtotal	42	152	74	19	142	49	478
TOTAL — CLINICAL MEDICINE, BASIC MEDICAL SCIENCES AND MEDICAL AND ALLIED EDUCATION	80	173	162	80	263	115	873
Percentage	**14**	**21**	**19**	**14**	**30**	**20**	**21**
GRAND TOTAL	574	823	860	556	865	569	4 247[a]

[a] 2 833 during 1976 (12 months) and 1 414 during 1977 (6 months).

7.64 In the African Region, the fellowships programme gave priority to the training of teachers and officers responsible for management and services. Where possible, the training of fellows in institutions within the Region was emphasized.

7.65 As in the African Region, the emphasis in the fellowship programme of the South-East Asia Region was on training within the Region. The Regional Office continued to collaborate with headquarters in reviewing the fellowships programme and in identifying the interrelationship between fellowships and other components of WHO assistance. Although there was progressive regionalization of the fellowship programme, i.e., placement of fellows in institutions within the Region wherever possible, the Regional Office continued to receive requests from Member States for fellowships to be awarded outside the Region, even in subjects of study for which facilities were available within the Region.

7.66 In the European Region, the intercountry exchange of information on the placement, supervision and follow-up of WHO fellows allowed closer collaboration between the Regional Office and the national fellowships officers of Member States. The courses at the Universities of Oslo, Norway, and Leeds, United Kingdom, on national health services aim to stimulate the exchange of information between staff and trainees ; fellows may attend either or both courses, which are held consecutively with a view to encouraging an exchange of ideas. The European Regional Office organized 23 training courses in 1976, attended by a total of 169 participants from 40 countries. As from January 1977, the Regional Office assumed responsibility for administrative and technical matters concerning undergraduate fellows from the African and Eastern Mediterranean Regions studying in Belgium, France and Italy. Assistance in the form of fellowships and foreign lecturers was provided for the English- and Russian-language courses for public health administrators given in Moscow, USSR.

Evaluation and research

7.67 The lack of systematic monitoring of health workers' activities and subsequent adjustment of the planning and training processes is an obstacle to the efficient planning and implementation of the health services. A first effort to develop evaluation processes was undertaken by the Regional Office for the Eastern Mediterranean, where a study was undertaken that attempts to describe the major activities of the health manpower development programme, to identify the major issues or problems to be resolved, and to outline some possible alternative strategies to deal with those problems and issues.

7.68 The meaning, purpose and use of learning objectives were discussed in 1976 by a study group,[1] which proposed guidelines for the evaluation and construction of educational objectives that would make them relevant to health service needs and to the health needs and demands of the population.

7.69 Research activities on the tasks of the various members of the health team were completed in Brazil, Egypt and Hungary.

7.70 Research aimed at defining the scientific basis for the profile of specialist physicians was carried out by the WHO Collaborating Centre for Postgraduate Education at the Central Institute for Advanced Medical Studies, Moscow, USSR.

[1] WHO Technical Report Series, No. 608, 1977.

7.71 A feasibility study on the development of new approaches to training primary health care workers was carried out in Sudan to gather the data necessary for a two-year study. The resulting communication transfer project aims at developing an improved system of communication at village level in the Sudan, which will form a basis for adaptation to the needs of other countries. Traditional concepts and practices are being identified in selected village communities. On the basis of the data collected, scientific health information will be translated into educational concepts and methods suitable to the villagers' frame of reference.

Migration of health personnel

7.72 The emigration of trained health personnel is a costly drain on the health services of some countries least able to afford the loss. The WHO multinational study on the international migration of physicians and nurses was completed and the results submitted to the sponsoring agencies.[1] The findings showed that the migration of physicians and nurses, particularly from developing countries to developed countries, has increased significantly during the past few years. Unattractive working, service and living conditions for health workers, particularly in rural areas, poor career prospects and job satisfaction, and irrelevant training programmes and lack of health manpower planning were identified among the reasons.

Health manpower development information service

7.73 The Sixth General Programme of Work covering a specific period (1978–83) stressed the need to create services within specific programme areas to ensure the adequate provision and use of information. A health manpower development information service was created in July 1977 to serve as the focal point for (*a*) promoting the exchange among Member States of information on health manpower development, and (*b*) coordinating the development and operation of appropriate mechanisms, whether existing or new, for this purpose.

7.74 The service issued *Health Manpower News* on a trial basis to regional offices in September 1977; it aims to provide educators, health workers and WHO field staff with information about new trends and developments in health manpower development throughout the world.

7.75 In Central America, an information system was inaugurated for the collection and distribution of basic information on available health personnel.

Examples of health manpower development activities in other programmes

Health services manpower development, health manpower planning and management

7.76 In the programme of strengthening of health services various workshops aimed at increased effectiveness in health service delivery. Other workshops concentrated on country health programming approaches and their management and administrative aspects.

7.77 The WHO-supported African Institute of Health Planning in Dakar, Senegal, provided French-language and English-language courses on health planning for health workers from many countries of the African region. A workshop on project

[1] See footnote 1 on page 65.

formulation, held in 1976, was attended by nationals and staff from some United Nations bodies. With the cooperation of UNICEF, a multisectoral workshop on public health practice research, focusing on primary health care, was held in 1976 in Mbabane, Swaziland, for nationals from Botswana, Lesotho and Swaziland. A workshop on country health programming and project formulation was organized in 1976 in Kano, Nigeria, with the participation of national representatives from the Nigerian Federal and State Governments, universities and international agencies. Similar workshops took place in 1977 in Angola, Ghana, Madagascar and Mozambique ; all of them emphasized the importance of the multisectoral approach to planning and programming of countries' health systems.

7.78 National workshops were also organized in 1976 in Bangladesh and Mongolia, and in 1977 similar workshops were organized in Bangladesh, Nepal and Sri Lanka. The Regional Office for South-East Asia held a training course on the concepts of country health programming, emphasizing programming and management aspects of maternal and child health.

7.79 A course on operational research in public health was held in Bratislava, Czechoslovakia, in 1976. WHO also contributed in 1977 to a course in Lisbon, Portugal on the application of systems analysis to health management. In Thailand in 1976 a national workshop concentrated on implementation and management.

7.80 In the Western Pacific Region, training courses on management were conducted in the Philippines in 1976 and 1977 with WHO's collaboration. A national course on country health programming was sponsored in Papua New Guinea in 1977. A series of three courses in health management was organized in the Philippines during 1977 with support from several agencies.

7.81 A programme of manpower development in fertility management and maternal and child health care is being developed relating to the training of all levels of health workers. A programme of this type was initiated in the Sudan in 1977 to complement the national primary health care programme ; planning was also carried out for the Mexican national family planning programme.

7.82 A Regional Programme of Continuing Education in the administration of family planning programmes was carried out in the Region of the Americas, in collaboration with the School of Public Health in Mexico and with the University of the West Indies.

7.83 Under the programme of collaboration between the Government of Bulgaria and WHO, a training course on methods of planning, organization and management of maternal and child health services took place in Bulgaria in July 1977, for leaders and directors of maternal and child health services from French-speaking developing countries (12 participants from 9 countries).

7.84 The European Regional Office, in collaboration with the International Children's Centre, Paris, France, conducted a training course on family health and family planning in Paris in October 1976, continued in Algiers in October–November 1976. Another course was conducted in Izmir, Turkey, in October–November 1977.

7.85 In the planning of mental health services, manpower planning aspects were examined at country level in three workshops on psychiatric epidemiology organized jointly with national health administrations (in Brussels, Belgium, in

March 1977; Teheran, Iran, in April 1977; and Jakarta, Indonesia, in July 1977). These workshops made recommendations on the integration of mental health programmes in general health planning. To strengthen expertise in modern techniques for planning, implementation, evaluation and research among the cadre of mental health planners in developing countries, a four-month training programme was established in Geneva and in WHO collaborating centres in Czechoslovakia, Denmark, India and the United Kingdom. The European Regional Office established a series of courses on the planning and evaluation of mental health services. Three courses on mental health for public health administrators from developing countries were conducted in collaboration with schools of public health in Belgium (in March 1977) and the United Kingdom (in May 1976 and May 1977).

7.86 An international one-month course on the organization of occupational health services was held in Bulgaria in 1976 to train senior health planners from developing countries (17 participants from 12 countries in all regions) in the integration of occupational health into public health services; a second, similar course was conducted in 1977.

7.87 As regards requirements for national environmental health personnel, during 1976–77 much emphasis was placed on the development of manpower studies in accordance with Health Assembly resolution WHA26.59 adopted in 1973. In the European Region a consultation was held in December 1976 to review the results of a study initiated in 1973 concerning regional manpower requirements in environmental health. A similar study is underway in the South-East Asia Region, while a suitable methodology is being developed in cooperation with all Regional Offices. Arrangements were made for cooperation with UNESCO in the education and training of environmental engineers and technicians.

Health coverage and new categories of health personnel (including specialized training)

7.88 In accordance with World Health Assembly resolution WHA28.88 of 1975 on the promotion of national health service related to primary health care, the programme of strengthening of health services developed strategies for the training of primary health care workers. In 1976, training workshops were conducted in the South-East Asia Region for community health workers; the objectives of these workshops included: (*a*) defining educational objectives for the retraining of health workers to enable them to adopt an appropriate approach to communities, and to train and support community health workers at the peripheral level; (*b*) formulating educational objectives for the training of community health workers on the basis of tasks as defined by the communities involved; and (*c*) proposing training requirements and the range of activities that should be undertaken by community health workers at the peripheral level, including team work.

7.89 At the University of Zaire, a three-year course for dietitian-nutritionists was organized. In the Americas, special efforts were made to strengthen and standardize training programmes for non-medical nutritionists, while in the Eastern Mediterranean Region courses in public health nutrition were given at the School of Public Health in Teheran, Iran.

7.90 Progress in building national capabilities to train qualified health education specialists has been hindered by the lack of training facilities and the paucity of

training personnel. WHO worked in all the regions to establish national or regional courses to meet the needs of the countries. For example, the Organization contributed to the development of the African Regional Training Centre at the University of Ibadan, Nigeria, which offers a diploma course and a Master's degree in public health, with health education as a specialty; the first group of health education specialists graduated from the Centre in 1976. University-level training in health education was also developed at the Department of Health Education in Kenya, the Institute of Public Health in Kuala Lumpur, Malaysia, and the Institute of Health Education in Papua New Guinea. Training as health education auxiliaries was developed for students in the National School for Social Action in Gabon, and in Guinea-Bissau health education courses were organized for social auxiliaries, members of the youth movement and first-aid workers.

7.91 The Organization's Special Programme of Research, Development and Research Training in Human Reproduction is now the world's largest programme on the training of scientists and technicians for research in human reproduction and family planning. Lack of expertise in epidemiology and statistics is a major impediment to service research in family planning, including field studies and clinical trials of fertility-regulating methods. A course on the application of epidemiology to such research was organized by the Special Programme in 1976–77 at the London School of Hygiene and Tropical Medicine, United Kingdom, attended by trainees from WHO collaborating centres in Hungary, India, Nigeria and Thailand. An understanding of the cultural factors affecting family planning attitudes and practice is essential in the planning of appropriate programmes and selection of methods of fertility regulation; in both 1976 and 1977 a one-year training programme on research into acceptability was organized at the University of Exeter, United Kingdom, for social scientists from developing countries. The highest priority for health service research in the Special Programme has been the use of different categories of non-physician health personnel to perform different tasks in family planning care. Strengthening of laboratory capability was also a major objective of the Programme; three courses were held in Costa Rica, Thailand and the United Kingdom on laboratory management, quality control, and the use of specialized equipment and standardized procedures, respectively, attended by a total of 73 participants from 47 developing countries.

7.92 WHO-sponsored English-language and French-language courses in the epidemiology and control of communicable diseases, which have been conducted since 1966, were continued in collaboration with institutes in Czechoslovakia (Prague), Egypt (Alexandria), France (Paris), Ivory Coast (Abidjan), USSR (Moscow) and Upper Volta (Bobo-Dioulasso). The courses were strengthened by special emphasis on evaluation procedures and on modern teaching methods. Since 1966 over 300 persons from 79 countries have attended the courses.

7.93 A travelling seminar on antimalaria measures for sanitary engineers was organized in 1976; it started in Berkeley, USA, and was completed in El Salvador; in 1977 a similar seminar was conducted in Bombay, India. In collaboration with the Ministry of Health of Algeria, a seminar on environmental health project formulations in vector control was held at the Institut national de la Santé publique, Algiers; its main objective was to assist in the planning and programming of a national plan for environmental health in Algeria. At the request of the Bulgarian Government, lectures on

vector biology and control were given in October 1977 at the Institute of Hygiene and Epidemiology, Varna, Bulgaria, as part of the training of entomologists in epidemiological surveillance and control of communicable diseases. Supported by a grant from DANIDA, a course on the ecology and control of rodents was given in 1976 at the Danish Pest Infestation Laboratory, Lyngby, Denmark, and at the Pest Infestation Control Laboratory, Tolworth, United Kingdom, attended by 15 participants from 11 developing countries; particular emphasis was laid on the detection of resistance to rodenticides and the counter-measures to be taken should it appear. In the Western Pacific Region, the first regional seminar on the safe use of pesticides was organized in Manila in 1976; it was followed, also in 1976, by an interregional seminar on epidemiological methodology for the study of pesticide poisoning and of potential long-term effects of exposure to pesticides, arranged in Geneva for senior health administrators in charge of emergency services.

7.94 In the South-East Asia Region, training in mental health for all categories of health personnel was supported in four countries. Mental health training for nurses received special attention in several regions; to improve the exchange of information and the coordination of these activities, a cooperative network consisting of nursing schools in all parts of the world is being established.

7.95 The Organization sponsored a training course in the Federal Republic of Germany and the United Kingdom in January–April 1976 to familiarize X-ray engineers and engineering technicians with the different types of radiological equipment and routine maintenance and repair of such equipment; the course was attended by participants from countries in all WHO regions except the European Region.

7.96 WHO conducted training courses in collaboration with its network of immunology research and training centres (in São Paulo, Brazil; New Delhi, India; Teheran, Iran; Nairobi, Kenya; Ibadan, Nigeria; and Lausanne, Switzerland), varying in duration from two weeks to three months and attended by approximately 140 participants from at least 40 developing countries; the major aims of the courses, which are a regular feature of WHO's immunology programme, were to teach modern concepts and techniques in immunology as applied to diseases of local public health importance.

7.97 Manpower development in the health laboratory field was promoted through the participation of WHO field staff in several national training courses, support to training centres and the provision of teaching aids. For instance, a National Quality Control Seminar was held in New Delhi, organized by the Directorate of Health Services of the Government of India. With the support of DANIDA, WHO organized interregional training courses for the improvement of quality analysis in clinical chemistry, in Ghana (Accra), Iraq (Baghdad), Ivory Coast (Abidjan) and Malaysia (Kuala Lumpur), for 56 participants from 42 countries; as a follow-up to these courses, all participants were included in a proficiency testing programme based on WHO collaborating centres. An interregional training course on simple techniques used for laboratory diagnosis in haematology was held in Thailand for 15 participants from 12 countries; the diagnosis of anaemias of public health importance and methods of control were stressed.

7.98 There is a great shortage of trained manpower for environmental hazards control, particularly in developing countries. Under an agreement with the Government

of Bulgaria and WHO, three training courses in environmental pollution control were organized in Sofia during 1976 and 1977. These courses were attended by 45 participants from developing countries. Other training activities included an inter-regional course on coastal water pollution control in 1976, organized in Copenhagen, Denmark, under the sponsorship of DANIDA; regional courses on solid waste management in 1976 and water pollution control in 1977, organized by the Regional Office for the Western Pacific; and several regional training courses in air pollution monitoring and control in 1977 (in all regions except Europe).

7.99 WHO continued its work to upgrade the training of food hygienists. Courses in food microbiology were held in 1977 at the FAO/WHO Collaborating Centre for Research and Training in Food Hygiene at the Robert von Ostertag Institute of Veterinary Medicine, Berlin; at the University of Surrey, Guildford, United Kingdom; and at the Central Institute for Nutrition and Food Research, Zeist, Netherlands. In addition, a course on food control was held in Sofia, Bulgaria.

Curricular reform

7.100 The Organization cooperated with various countries in the revision and development of suitable curricula for the undergraduate teaching of physicians and other health workers in maternal and child health, family planning, paediatrics and obstetrics. There was a need to orient curricula more towards the specific maternal and child health tasks that health workers have to perform at various levels in each country, depending on national and local priorities. In India, a new curriculum devised by the WHO *ad hoc* committee on paediatrics education was demonstrated in two medical colleges in order to propagate new concepts of teaching child health at the undergraduate level, and arrangements were made for heads of departments in other medical colleges to visit these two centres.

7.101 The mental health programme promoted new curricula in mental health for nurses, with emphasis on the management of mental disorders (where increasing stress is placed on community and outpatient experience) and on the psychological aspects of nursing. Training programmes in the area of drug dependence and alcohol-related problems were carried out in countries in three Regions (the Americas, Europe, and South-East Asia). Activities to strengthen the teaching of psychiatry in medical education were undertaken in the South-East Asia and Eastern Mediterranean Regions. The establishment of psychiatry in the medical curriculum and a better undergraduate orientation in mental health has now been achieved in all countries of the South-East Asia Region.

7.102 The Organization initiated a joint training programme with the International Federation of Health Records Organizations, with the objective of increasing and improving training facilities in the health records field. Within the framework of this programme, a technical service agreement was concluded with the New South Wales Training School for Medical Records Administration, Australia, for a two-year study on: (*a*) setting learning objectives based on a systematic analysis of the students' future professional functions, and (*b*) evaluating the teaching programme and methods to ascertain whether the objectives have been achieved.

Teacher training

7.103 As part of WHO's family health programme, courses were organized for

teachers in paediatrics and administrators in maternal and child health. In 1976–77 a UNICEF/WHO course for senior teachers trained 24 potential professors of child health and paediatrics; this collaborative training effort is now being shifted from the interregional to the country level in the South-East Asia Region, with the participation of a team of paediatricians trained in India, Peru, Philippines, Sudan and Thailand.

7.104 A manual on health statistics for teachers of medical students was published in 1977, jointly sponsored by the International Epidemiological Association and WHO;[1] its purpose is to help teachers to relate their teaching of statistics to the realities of human biology, medical practice and research and the management of health services. A workshop on educational aspects of teaching health statistics was held in Cardiff, United Kingdom, in 1977, with the collaboration of the Department of Education, University College, Cardiff; the participants—experienced teachers of medical undergraduate and postgraduate students, medical records personnel, intermediate level statistical staff and teachers of statistics in international training courses—learned how to assist their students to attain learning objectives more effectively.

Teaching/learning materials

7.105 To improve the teaching of fertility-regulating methods based on periodic abstinence, the Organization developed a curriculum outline in the form of a manual for teachers, including supportive teaching/learning materials; this manual is about to be field-tested in different countries. WHO supplied much-needed teaching materials and teaching aids on malaria and parasitic diseases, including self-instructional packages, to various institutions in all regions. Work was begun in 1977 on the preparation of teaching-aid packages dealing with various aspects of environmental hazards control. Training material, in the form of instructors' notes and participants' notes, was prepared for the reorientation of trained coders to the use of the Ninth Revision of the International Classification of Diseases.

Continuing education/fellowships

7.106 The Organization's programme in family health emphasized the need to promote post-graduate training in fertility management and maternal and child health care. During 1976–77 three courses were given at the University of Singapore, attended by 39 participants from developing countries, covering the multidisciplinary team-work approach and the development of skills of service management for integrated maternal and child health and family planning care and instructional techniques.

7.107 Through its network of collaborating centres (in Buenos Aires, Argentina; Santiago, Chile; New Delhi, India; Stockholm, Sweden; and Moscow, USSR) the Special Programme of Research, Development and Research Training in Human Reproduction sponsored courses on advanced laboratory methodology and reproductive biology. In addition, two collaborating centres for clinical research in human reproduction provided advanced research training: in Ibadan, Nigeria, in the form of a three-year course for African scientists on reproductive biology, and in Bangkok, Thailand, on laboratory methodology. About 100 research training grants were awarded by the Special Programme during the biennium, primarily to trainees

[1] Lowe, C. R. & Lwanga, S. K., ed. *Health statistics: A manual for teachers of medical students.* Oxford, Oxford University Press, 1977.

from developing countries, and mainly in such areas as laboratory and clinical research methods, male reproduction, immunology and infertility. During the period of training, trainees are encouraged to formulate a research project that they will conduct, with WHO support, on return to their home institutions.

7.108 The malaria and other parasitic diseases programme helped to organize short-term and long-term courses for health workers wishing to follow a career in tropical public health. The objectives of the long-term courses are to enable the participants (*a*) to select priorities in public health activities in terms of feasibility under the local socioeconomic conditions, (*b*) to plan, implement, and manage eradication or control programmes for malaria and other parasitic diseases, and (*c*) to provide or secure required training for subordinate staff. The first course of this kind (in English) was organized at the School of Public Health, University of Teheran, Iran, during September 1975-December 1976; a second course is extending over the period August 1977-December 1978. Similar ten-month courses in Spanish are organized regularly at the School of Public Health, Mexico City. The Regional Office for Africa, in collaboration with the National University of Benin, has organized a French-language post-graduate public health course in Cotonou, Benin, from September 1977 to June 1978.

7.109 During 1976–77 the Expanded Programme on Immunization sponsored one interregional and six regional training seminars attended by more than 200 participants from over 60 countries. The interregional seminar served the dual purpose of field-testing a newly developed Expanded Programme training course for national programme managers, and training international staff to be trainers of programme manager-level national staff from countries participating in the Expanded Programme. The six regional seminars were attended by senior health officials and by representatives of potential donor agencies; they discussed the strategies and objectives of the Expanded Programme.

7.110 In September 1977, the Special Programme for Research and Training in Tropical Diseases organized a joint FAO/WHO/OAU leadership training seminar on trypanosomiasis in Nairobi, Kenya. The overall objective of the seminar, which was attended by approximately 50 young scientists from 34 countries in the African and Eastern Mediterranean Regions, was to train graduates who were not yet experienced in trypanosomiasis but who wished to take up a career in the field control of the disease; emphasis was placed on the interrelationships between the entomological and veterinary disciplines.

7.111 In collaboration with the National Institute of Neurological and Communicative Disorders and Stroke, USA, the Organization sponsored courses for senior public health workers and neurologists on the use of anti-epileptic drugs and on genetic metabolic diseases of the nervous system. A fellowships programme for advanced post-doctoral training in the neurosciences, financed by the National Institute, was designed which during its initial phase will place emphasis on convulsive and cerebrovascular disorders. In collaboration with the Menarini Foundation, Florence, Italy, an international symposium was organized on perspectives in psychopharmacotherapy, to review problems in the treatment of common mental and neurological disorders, both in developed and developing countries. The Organization collaborated with the National Institute of Mental Health, USA, to

arrange a workshop on psychopharmacotherapy, attended by specialists from developing countries. Post-graduate training courses in psychiatry were supported in six countries in the South-East Asia, Eastern Mediterranean and Western Pacific Regions; for instance, WHO cooperated with Saudi Arabia in developing local post-graduate courses in psychological medicine.

7.112 Fifteen senior pathologists from Egypt, Iran, Iraq, Libyan Arab Jamahiriya, Saudi Arabia, Sudan and Tunisia and about 20 observers from the University of Baghdad attended a WHO seminar on the histological classification of tumours, held in 1976 at the College of Medicine, University of Baghdad, Iraq, in collaboration with the Regional Office for the Eastern Mediterranean. The seminar concentrated not only on correct diagnosis but also on the problem of standardization in recording and reporting diagnostic information; the need for uniformity to promote international communication was stressed. In collaboration with the International Society and Federation of Cardiology, WHO sponsored ten-day teaching seminars in Mexico City in 1976 and Accra, Ghana in 1977 on the epidemiology and prevention of cardiovascular diseases. Forty fellows attended each seminar. Candidates for the scholarships programme sponsored by the Swedish National Association against Heart and Chest Diseases were selected.

7.113 In collaboration with the Institute of Occupational and Radiological Health in Belgrade, Yugoslavia, WHO sponsored a one-month course on occupational toxicology. The course provided training for occupational health personnel in the methodology of evaluating toxic effects of industrial chemicals and the conduct of epidemiological studies, particularly monitoring occupational health. Twenty-four participants from 15 countries in all WHO regions attended the course.

7.114 Under the auspices of the inter-agency *Ad Hoc* Working Group on Rural Potable Water Supply and Sanitation, WHO organized a French-language workshop on rural water supply and sanitation in Ouagadougou, Upper Volta, in December 1976; the workshop brought together 30 senior planners and water supply personnel from 15 countries in the African and European Regions. The Governments of France, Switzerland, Upper Volta and USA provided financial and material support for the workshop, which emphasized the problems of water supply and sanitation in rural areas and encouraged the allocation of higher priority to programmes in the sector. The workshop was followed by sector studies under the WHO/IBRD Cooperative Programme.

Chapter 8

Communicable Disease Prevention and Control

8.1 STUDIES of mortality and morbidity continue to reflect and highlight the epidemiological importance of the interrelationship between communicable diseases, malnutrition and unhealthy environment. While techniques of communicable diseases control have undoubtedly improved, and new ones are being devised, their application should be seen in the context of national socioeconomic development and the utilization of overall resources. Problems resulting from weakness of epidemiological surveillance systems, health infrastructure and supporting services continue to demand special attention. Within such a context, the communicable diseases programme focused on (1) improving epidemiological and control services as an integral part of national health services at all levels; (2) collaborating in the investigation and assessment of specific diseases of public health importance, to identify the most promising epidemiological and control measures; (3) the training of professional and auxiliary staff at planning, operational and research levels; and (4) promoting and coordinating basic and applied research, particularly on diseases for which control measures are more difficult to apply or about which more knowledge is required.

Epidemiological surveillance

8.2 During its nineteenth session in November 1976, the Committee on International Surveillance of Communicable Diseases undertook a broad review of the basic concepts underlying the International Health Regulations. The Committee felt that the Regulations would continue to be of value despite changing epidemiological circumstances. Since the Regulations represented the maximum measures that should be taken, Member States could reduce their requirements relating to international travel at any time in accordance with the current epidemiological situation. The Committee expressed concern that the vaccination certificate requirements notified to WHO by many States did not agree with the actual practice at points of entry to those countries; this situation often resulted in unnecessary difficulties for travellers.

8.3 An outbreak of viral haemorrhagic fever in southern Sudan and northern Zaire in the latter half of 1976 led the Committee to consider whether such diseases should be included in the existing list of diseases under surveillance. Their inclusion was not recommended because of the difficulty of excluding other diseases causing greater morbidity and mortality and because the prompt reporting of

significant outbreaks of communicable diseases is the best foundation for their international control, irrespective of their inclusion in any particular list.

8.4 Between the Committee's meeting and the Thirtieth World Health Assembly in May 1977, which approved the Committee's recommendations and views [1] (resolution WHA30.19), a previously unsuspected focus of smallpox in Somalia had become evident. This outbreak, which subsequently gave rise to some 3000 cases, caused concern that was apparent in the Assembly's discussion on the modification, on sound epidemiological grounds, of smallpox vaccination certificate requirements by Member States. In general, however, the absence of major difficulties in administering the International Health Regulations during 1976–77 reflected a relatively tranquil period as regards communicable diseases relating to international travel.

8.5 The surveillance and control of salmonella and food-borne outbreaks were reoriented within the framework of surveillance and control of acute infections of the intestinal tract and the promotion of environmental health (in particular, joint FAO/WHO monitoring of food contamination and food-borne diseases to ensure food safety and the control of these diseases). This activity will increasingly devolve on regional offices ; those for the Americas and Europe, in particular, are already developing it. Interregional coordination and dissemination of information to assist these regional activities is the responsibility of WHO headquarters.

8.6 Although the laboratory plays an essential role in the surveillance of influenza, epidemiological indices need to be used in systems designed to provide an early warning of developments in the disease situation and to evaluate the impact of the disease. To assist in the promotion of national systems monitoring epidemiological indices, a study was carried out of efficient systems used in the Netherlands and the United Kingdom. Information on the organization and epidemiological effectiveness of these systems was made available to health administrations, in particular through the *Weekly Epidemiological Record.*

Malaria and other parasitic diseases

Malaria

8.7 Malaria continues to be a major public health problem in the majority of tropical countries. The recent past has seen a return of malaria to wide areas that had been largely freed from the disease (Fig. 8.1). The number of microscopically diagnosed malaria cases reported has increased from 3.2 million in 1972 to 7.5 million in 1976. In the epicentre of malaria, i.e., tropical Africa, the malaria situation has remained practically unchanged, with holo- and hyper-endemicity prevailing in most African countries south of the Sahara. In South-East Asia, reported cases have increased from 1.9 million in 1972 to 6.5 million in 1976. Malaria has re-established itself at the former endemic levels in several areas of Bangladesh, India and Sri Lanka, and the situation has worsened in Thailand.

8.8 Technical problems in the form of vector resistance to insecticides, drug resistance of parasites, and factors associated with human ecology are still unsolved ; administrative and financial constraints remain important obstacles to the implementation of effective control programmes, especially in the rural areas of

[1] WHO Official Records, No. 240, 1977, Annex 1.

the tropics. Resistant falciparum malaria has established itself in areas with a population of nearly 45 million, and areas with a population of 90 million are at grave risk of invasion by resistant strains of this parasite.

8.9 In pursuance of the revised strategy of the antimalaria programme called for by the World Health Assembly in 1968 (resolution WHA21.22), a thorough review was made of the programme at all levels. A Health Assembly resolution of 1976 (WHA29.73) provided the basis for the Organization's present policy.

8.10 In the African Region a programme covering the period 1978–83 was prepared with the principal objective of reducing mortality and morbidity. Feasibility studies will be conducted and eradication programmes undertaken in areas with adequate technical and financial resources.

8.11 In the Region of the Americas the majority of countries reviewed their programmes in order to (1) include the application of combined control methods using insecticides, antimalarial drugs and engineering schemes such as drainage, landfill and cleaning of canals to eliminate or reduce mosquito breeding places, and (2) assign a high priority to the training of professionals who work in malaria. Thus a Master in Public Health course with emphasis on malaria and other parasitic diseases has been held in Mexico since 1976, a postgraduate entomological course stressing epidemiology was conducted in São Paulo in both 1976 and 1977, and a seminar for engineers on mosquito control, with emphasis on bio-environmental methods, was held in California, USA, and in El Salvador in 1976. Assessments were conducted of the programmes in Brazil, Haiti and Nicaragua, and periodic coordination border meetings were held by the malaria programmes of neighbouring countries. Thus the rigid criteria of the traditional methodologies are evolving towards operational flexibility on a sounder epidemiological, socioeconomic, health and resources basis, in each country.

8.12 In the South-East Asia Region, assessments of the Bangladesh and Indonesia programmes were made and steps taken to institute a malaria containment programme in areas of India with a population of 70 million people where *Plasmodium falciparum* is prevalent. Great efforts were made to reorganize the malaria service in India by decentralizing and redistributing technical staff, strengthening surveillance activities, and concentrating efforts in areas of great socioeconomic importance.

8.13 In the European Region advice was given to the Governments of Algeria and Turkey in making plans to control the transmission of malaria and in assessing the programme. WHO also contributed staff and funds during the malaria epidemic in the Adana area of south-eastern Turkey, where 103 000 cases were reported up to the beginning of October 1977 and where the local vector shows resistance to most of the classical insecticides.

8.14 In the Eastern Mediterranean Region, time-limited eradication programmes were converted into non-time-limited malaria control programmes in Afghanistan, Ethiopia [1] and Pakistan. The coordinated malaria programme in the Arabian peninsula was being organized and will be carried out simultaneously in Democratic Yemen, Oman, the United

[1] In May 1977 the World Health Assembly agreed to Ethiopia's request to be included in the African Region (resolution WHA30.35).

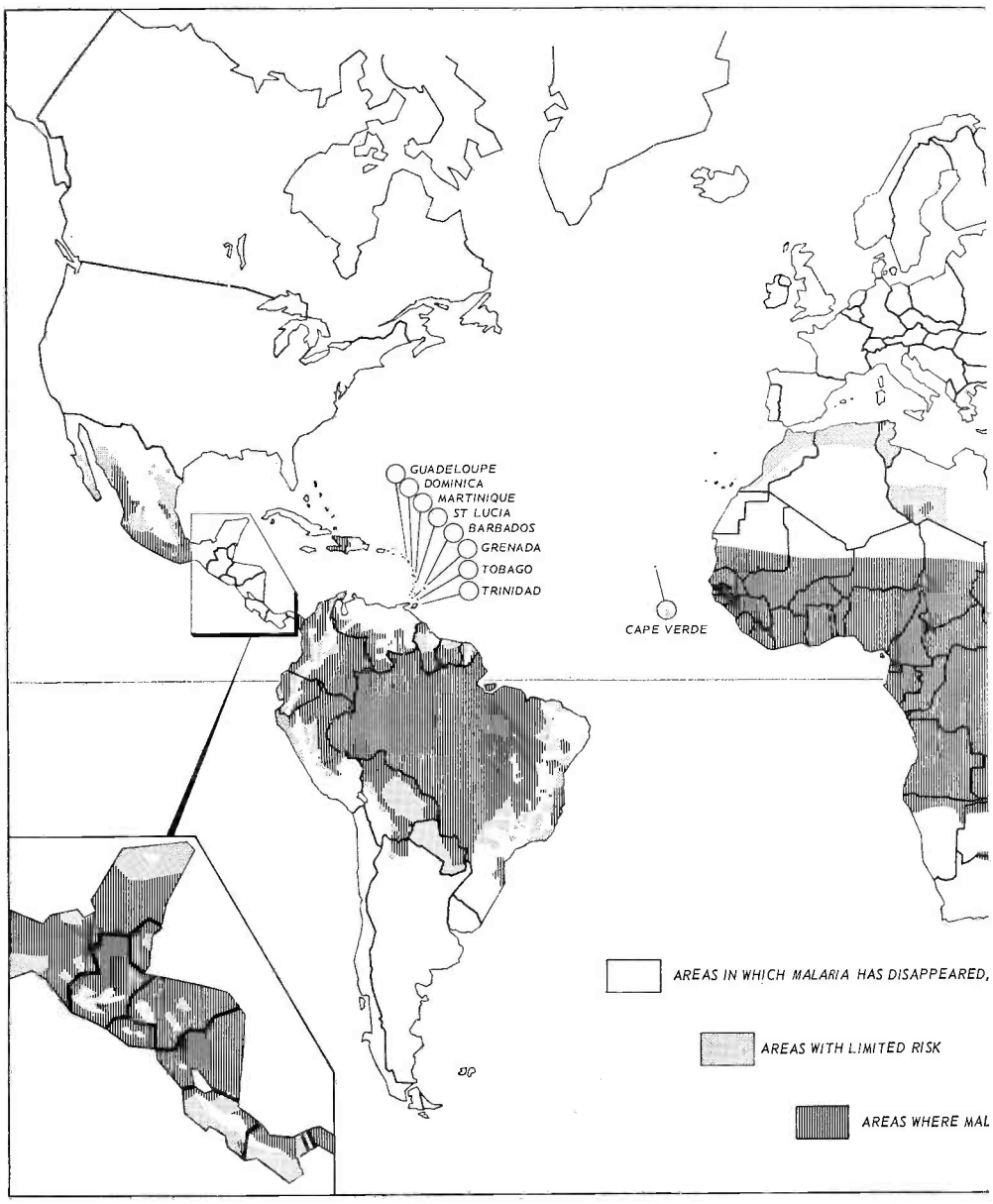
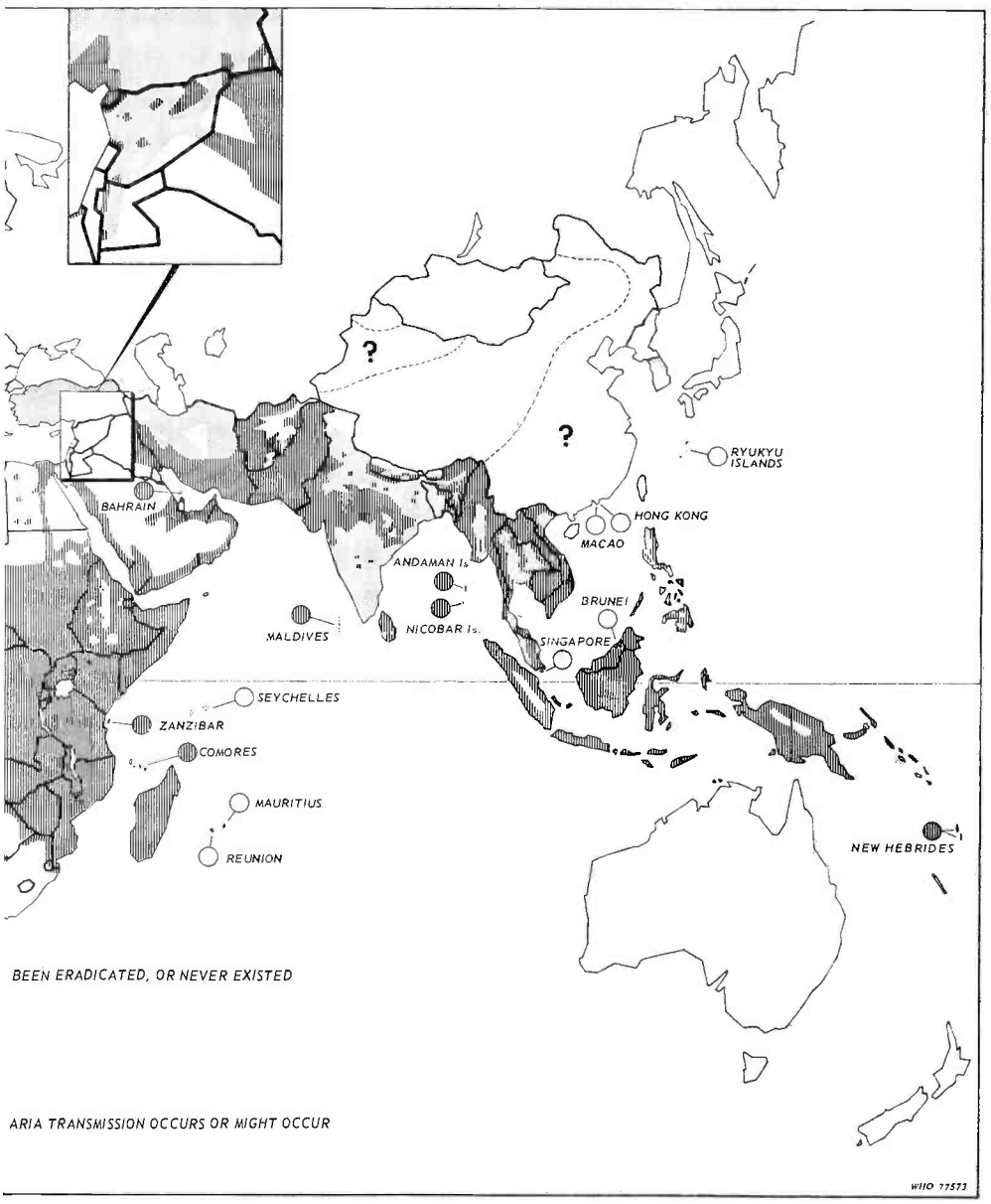


Fig. 8.1 Epidemiological assessment of



the status of malaria, December 1976.

Arab Emirates and Yemen. In order to promote self-reliance and self-help, the Regional Office encouraged country schemes aimed at the direct participation of communities in antimalaria operations and supported intercountry coordination and cooperation to develop common policies and strategies.

8.15 Coordination activities took place between countries in the South-East Asia and Western Pacific Regions (Malaysia, Singapore and Thailand). Courses and seminars were organized with WHO cooperation in the Lao People's Democratic Republic, Malaysia, Papua New Guinea and the Philippines. A regional course for professional staff on the operation and assessment of antimalaria programmes was organized in Kuala Lumpur in July 1976.

8.16 Priority areas of applied malaria research include : base-line assessment and monitoring of drug sensitivity in *P. falciparum*, evaluation of community participation in antimalarial activities, chemoprophylaxis in children of malaria-endemic areas, approaches towards malaria control in problem areas, impact of pattern application of insecticides, and strain distribution of *P. falciparum*. Efforts were made, within the framework of the Special Programme for Research and Training in Tropical Diseases, to assist the regions in the implementation of these programmes. Work on strain differentiation and on drug susceptibility testing and monitoring (*in vitro*) relating to *P. falciparum* infection was already being implemented in the South-East Asia Region, and a project was underway on chemoprophylaxis in malaria-endemic areas of Africa.

8.17 An applied research project that was in progress in Bendel State, Nigeria, should assist in answering the following question, with special reference to tropical Africa : What malaria control strategy, using presently available methods, is to be recommended and where, when, and how should it be applied ? Given the variety of situations available for study in Bendel State, extrapolation of the results to other parts of Nigeria and tropical Africa will be possible. Antimalaria strategies will be evaluated not only in terms of their effect on the transmission of infection but also in terms of their effect on the health of populations.

8.18 A review of research activities within the framework of the Special Programme for Research and Training in Tropical Diseases was carried out in December 1977 with the participation of malariologists, scientists, public health administrators, and representatives from tropical countries, WHO regions, and international and bilateral agencies.

8.19 In chemotherapy, emphasis was given to clinical trials of mefloquine, to the formulation of sustained-release systems of highly potent drugs such as 8-aminoquinolines and triazines, to comparative trials of existing drugs and their combinations, and to the screening of selected compounds for tissue schizontocidal and sporontocidal activity. Promising candidate compounds (e.g., menoctone-type drugs, related naphthoquinones, diamino-quinazolines and 8-aminoquinolines) were followed up and investigations conducted on such factors as parasite-drug interaction, the mechanism of drug resistance, and lead-directed synthesis of compounds.

8.20 The successful establishment of the continuous *in vitro* cultivation of *P. falciparum*, which renders the parasite material available to laboratories outside malaria-endemic areas, opened up new horizons for the mass production of mero-

zoites, while the successful immunization of humans against *P. vivax* and *P. falciparum* infections, using irradiated sporozoites, and recent advances in the area of gamete vaccines will greatly facilitate work on vaccine development. In the short term, studies in the immunoserological research area are likely to produce simple and reliable immunodiagnostic test systems, which are urgently required for epidemiological purposes in the field.

Schistosomiasis

8.21 In 1976–77, WHO staff visited the following countries : Brazil (where possibly 6 million people are infected), to advise on the implementation of control measures against *Schistosoma mansoni* infections ; Cape Verde, to advise on the strategy, tactics and implementation of a national plan to control intestinal helminthiases ; Jordan, to evaluate the threat of schistosomiasis ; Mexico, to give instruction on epidemiology and control and to advise an international meeting on the chemotherapy of cestodiases ; Saudi Arabia, to advise on the chemotherapy of schistosomiasis and on the projected national control scheme ; and Tunisia, to assess the schistosomiasis control programme. Visits were made to the WHO Tropical Disease Research Centre, Ndola, Zambia, in connexion with trials of a new schistosomicide. Liaison was established with IARC on the subject of drug toxicology.

8.22 The aim of the UNDP/WHO project "Research on the epidemiology and methodology of the control of schistosomiasis in man-made lakes" in Accra, Ghana, supported by the Edna McConnell Clark Foundation and the Governments of Canada, the Netherlands and the United Kingdom, is to provide a feasible and acceptable methodology for the control of schistosomiasis in Lake Volta and other man-made lakes by the end of 1978, when the Government of Ghana assumes responsibility for activities. Acceptable cure rates were obtained in the three chemotherapeutic campaigns implemented from 1975 to 1977, and age-specific intensities of infection were markedly diminished. Focal chemical control of snails in human water contact sites drastically reduced the numbers of infected intermediate hosts. The introduction of water supplies in lakeside villages greatly reduced human contact with lake water.

8.23 In the Philippines, WHO collaborated in FAO/IBRD/Asian Development Bank missions on the planning of land development schemes with a schistosomiasis control component.

8.24 Activities in the programme on man-made lakes, in response to Health Assembly resolutions in 1975 (WHA28.53), and 1976 (WHA29.58), included : continued work on elaborating guidelines for the prevention of schistosomiasis and other health hazards in water development schemes, a mission to South America to assess present and future health problems in all types of existing and planned water development projects, and sending a questionnaire on schistosomiasis control to a number of Member States.

8.25 In 1977 a Scientific Working Group on Schistosomiasis, held within the framework of the WHO Special Programme for Research and Training in Tropical Diseases, elaborated strategy for future research.

Filarial infections (including onchocerciasis)

8.26 Work on the control of bancroftian filariasis included the WHO interregional project located in the United Republic of Tanzania, the object of which is to develop simple methods of controlling the disease that can be applied on a community basis. A longitudinal study of the transmission

of *Wuchereria bancrofti* was underway to assess the effects of different control measures (large-scale diethylcarbamazine treatment, vector control, house modification). In Egypt, a survey conducted in the Qalyubia area in connexion with control operations received WHO support. As part of the intercountry epidemiological and surveillance services project, cooperation was provided in the South Pacific to the New Hebrides in revising the reporting system, to Niue in planning a post-control survey, and to Tonga in analysing the results of the entomological blood survey of 1976 and in organizing a nationwide control programme and training newly recruited staff.

8.27 Particular problems that arose in connexion with the onchocerciasis control programme in the Volta River basin area in West Africa (see below) concerned the methods used for epidemiological surveillance, the early detection of persons who are at special risk of blindness, the analysis of data, the possibility of introducing nodulectomy or chemotherapy into the programme, the reinvasion of parts of the controlled area by *Simulium damnosum* migrating over great distances, and the definition of criteria by which areas previously deserted, largely on account of onchocerciasis, may be judged safe for resettlement. Advice was given to the Government of Sudan in making plans to control the transmission of onchocerciasis and to treat infected persons who are at risk of blindness or have acute skin lesions.

8.28 The advent of funds for the Special Programme for Research and Training in Tropical Diseases enabled the research programme on filarial diseases to be greatly expanded and coordinated with the research activities of the onchocerciasis control programme. The Scientific Working Group on Filariasis concentrated on the field of chemotherapy, where there is a dire need for improved macrofilaricides (especially those effective against *Onchocerca volvulus*), for slow-acting microfilaricides, and for chemoprophylactic drugs. Several research projects were started in Africa designed to determine the most effective and acceptable ways of using the drugs that are at present available for treating onchocerciasis. The search for new filaricides involves a long-term programme consisting of basic lead-directed chemical synthesis, followed by screening in animal models, and finally toxicity studies and clinical trials. Research was sponsored to study (*a*) the feasibility of vaccine development, (*b*) the mechanism and means of preventing the production of immuno-pathological lesions in infected persons, (*c*) *in vitro* maintenance and culture methods for filarial parasites, and (*d*) a programme of epidemiological research to develop methods of detecting persons at special risk and to improve methods of controlling transmission, particularly by the use of relatively simple measures of the "self-help" kind.

Onchocerciasis control programme

8.29 During 1976 and 1977 phases II and III of the control programme in the Volta River basin area were implemented according to schedule. This means that, as planned, operations now cover an area of 700 000 km² in seven countries of West Africa—Benin, Ghana, Ivory Coast, Mali, Niger, Togo and Upper Volta—and approximately 12 000 km of river are being surveyed and treated weekly in the rainy season. The biodegradable insecticide ABATE (temephos [1]) formulated specifically for the programme is being applied by helicopters and fixed-wing aircraft based

[1] Proposed international common name.

at Tamale in northern Ghana and Bobo-Dioulasso in Upper Volta.

8.30 The data collected continuously by mobile entomological teams working from 7 sector and 22 subsector offices confirmed that the vector is being successfully controlled throughout the area. Modification of the spraying technique resulted in a substantial improvement in the control of difficult breeding sites such as Bui on the Black Volta.

8.31 Epidemiological base-line data were collected from over 300 villages throughout the programme area and will be used in the assessment of vector control measures. At the same time, detailed ophthalmological examinations of patients in a smaller number of villages led to a better understanding of how blindness develops as a result of onchocerciasis.

8.32 While the control of onchocerciasis is essential to improve the wellbeing of the afflicted population, the programme was planned to open up the area for economic development. During the biennium, donor countries and international agencies were engaged in carrying out preinvestment studies. The programme's economic development unit was strengthened in 1977 so that it can play a more active role in the collection, analysis and dissemination of development data in the area covered by the programme. While some resettlement schemes and agricultural and industrial projects were already underway, the programme was requested to provide criteria that would indicate when a river valley should be considered safe for settlement. A working group of the programme's Scientific Advisory Panel set as criteria an annual biting rate for *S. damnosum sensu lato* of 1000 flies and an annual transmission potential of 100 infective-stage larvae, levels that have already been reached in many river valleys.

8.33 The overall administrative responsibility for the programme was transferred from WHO headquarters to the Regional Office for Africa at the beginning of 1977. At the same time a new programme director was appointed with full responsibility for all activities. All functions are now controlled from programme headquarters in Ouagadougou. In addition, a liaison officer was appointed at the Regional Office.

8.34 The programme is financed through a special Onchocerciasis Fund receiving donations to date from 14 countries and agencies. The budget requirement for the first six-year period (1974–79) is now estimated at US$ 57 320 000, i.e., about US$ 4 million less than estimated earlier. The programme established a number of contracts with institutions and scientists to carry out applied research in (*a*) vector ecology, including studies on the various species of the *S. damnosum* complex and on the development of sampling devices ; (*b*) vector control—mainly testing alternative insecticides and formulations, (*c*) epidemiological, clinical and parasitological aspects of the disease and (*d*) chemotherapy. With the establishment of the larvicide operations, chemotherapy research is being intensified in collaboration with the Special Programme for Research and Training in Tropical Diseases.

8.35 An aquatic monitoring programme showed that the non-target riverine fauna is remaining healthy despite the weekly application of insecticide.

8.36 The programme's Scientific and Technical Advisory Committee, Ecological Panel, and Economic Development Advisory Committee met regularly to review the operational, research and environmental aspects of the programme. These bodies reported to the Joint Coordinating Committee, which met in December 1976 and December 1977 to consider progress and

to approve the budget for the following year. At its third meeting, held in Ouagadougou in December 1976, five participating countries requested an extension of operations beyond the present boundaries; this possibility is now under consideration.

African trypanosomiasis

8.37 During the biennium the Organization provided assistance to Angola, United Republic of Cameroon and Sudan in serious outbreaks of trypanosomiasis. The situation in Mozambique caused concern, and systematic reinvestigation of the endemic areas in this country is indicated.

8.38 Continuous surveillance of the population at risk is the essential safeguard against serious outbreaks of the disease. The joint FAO/WHO Expert Committee on African Trypanosomiasis, meeting in Rome in November 1976, concluded that such surveillance costs approximately US$ 0.44 per inhabitant per year. It is clear that at such cost surveillance activities in some countries are bound to be inadequate as regards frequency and coverage. The development of cheap, simple diagnostic and control methods is required and various laboratories in Africa, America and Europe are jointly involved in research on these subjects.

8.39 The UNDP/WHO Applied Research Programme centred at Bobo-Dioulasso, Upper Volta, was already providing satisfactory technical results in the field of low-dosage application of insecticides against *Glossina* and in the evaluation of the indirect haemagglutination test in capillary tubes under field conditions. In collaboration with the Organization for Coordination and Cooperation in the Control of Major Endemic Diseases in West Africa, and government services, a thousand of these tests were carried out in Ivory Coast and Upper Volta. Since the results showed that the test is less reliable under field conditions than in the laboratory, it is now under further study.

8.40 Investigations were begun in collaboration with the Bernhard Nocht Institute, Hamburg, Federal Republic of Germany, and the London School of Hygiene and Tropical Medicine, England on the possibility of an animal reservoir occurring for *Trypanosoma gambiense*. Should this possibility be confirmed in further studies, it would have important consequences for the control strategy of sleeping sickness due to *T. gambiense* infection. For instance, elimination of the human reservoirs would no longer provide a permanent solution to the problem of *T. gambiense* infections. Furthermore, vaccination, if technically feasible, would have to be regarded as only a temporary solution.

8.41 The current and proposed research programmes in Africa were drawn up during two meetings of the Special Programme for Research and Training in Tropical Diseases in Arusha, United Republic of Tanzania, in September 1976 and Bobo-Dioulasso, Upper Volta, in April 1977. As a result, one group of laboratories in East Africa initiated integrated programmes on immunology, pathology and clinical medicine. The chemotherapy component is covered by some 20 research agreements. Radio-labelled antitrypanosomal compounds will be made available and used in drug distribution experiments and mode of action studies in various laboratories. A network of medical centres in Africa is being created within the context of the Special Programme for the purpose of providing facilities for clinical trials of new compounds and joint studies on histopathology and pathogenesis, in accordance with standard protocols designed by Scientific Working Groups.

American trypanosomiasis

8.42 The prevalence of the American trypanosomiasis remains uncertain because of incompleteness of the base-line data, nor is it known what proportion of *T. cruzi* infections are followed by manifest disease. An increase in periurban spread of Chagas' disease has caused concern in recent years. Applied research on simple methods of housing improvement as a means of controlling the disease will be carried out as part of the programme of the WHO Chagas' Disease Vector Research Unit in Venezuela.

8.43 A meeting of the Special Programme Scientific Working Group on American trypanosomiasis was held in Buenos Aires in 1977. The programme for research on the development of new control methods will include work on methods for longitudinal studies of epidemiology, new chemotherapeutic agents and research on immunology and vector control. A new collaborating laboratory for diagnostic tests for Chagas' disease was designated in São Paulo, Brazil, with the reference task of comparing existing and newly developed serodiagnostic tests.

Leishmaniases

8.44 Although no concrete data are available on the incidence of leishmanial diseases, mucocutaneous leishmaniasis seems frequent during development projects in the forest areas of South America. South-East Asia experienced a resurgence of epidemics of visceral leishmaniasis. In Africa an epidemic of visceral leishmaniasis rapidly developed during 1977 in Machakos, Kenya. The Organization provided technical assistance and contributed drugs during an outbreak in Bihar State, India, in 1977. A WHO consultant assisted in epidemiological studies and in the training of national health personnel in Iraq.

8.45 The leishmaniasis research programme, as part of the Special Programme for Research and Training in Tropical Diseases, was reviewed by a Scientific Working Group meeting in Geneva in December 1977. The Working Group concluded that the public health importance of the leishmaniases had been underestimated in the past, and decided to initiate programmes to obtain better information on their distribution and prevalence. Moreover, leishmaniasis was considered to be a valuable model for study of the principles of host defence mechanisms, particularly macrophage action.

Research coordination

8.46 Work in this field was carried out in close collaboration with the Special Programme for Research and Training in Tropical Diseases. An *ad hoc* team visited Japan, Malaysia, the Philippines, the Republic of Korea and Singapore in connexion with coordination of research programmes and projects. As a result the Regional Advisory Committee on Medical Research of the Western Pacific Region recommended that research in the field of parasitic and other communicable diseases should be concerned with malaria, schistosomiasis, filariasis, leprosy, dengue haemorrhagic fever and enteric diseases. Also, the Regional Committee adopted a resolution (WPR/RC27/R9) requesting the Regional Director to take steps in order to (1) strengthen the Institute of Medical Research in Kuala Lumpur, Malaysia, (2) develop cooperation with the Multidisciplinary Programme of Operational Research in the Republic of Korea, and (3) establish three task forces to advise on

the development of regional research programmes in health services, in parasitic and communicable diseases and in cardiovascular diseases.

8.47 At its first plenary session in Geneva in June 1977, the Special Programme Scientific Working Group on Epidemiology made recommendations concerning its future structure and functions and on the implementation of the epidemiological research and training programme at the WHO Tropical Disease Research Centre, Ndola, Zambia.

Smallpox eradication

8.48 During 1976 and 1977 smallpox was limited to the nomadic population of the Ogaden, which includes part of northern Kenya, southern Ethiopia and Somalia (Fig. 8.2). Elsewhere in the world, continuing surveillance failed to reveal any cases of smallpox. During the biennium, 6000 diagnostic specimens from 60 countries were tested by WHO diagnostic laboratories (collaborating centres) in Moscow and Atlanta. Except for specimens from Ethiopia, Kenya and Somalia, none was positive for smallpox.

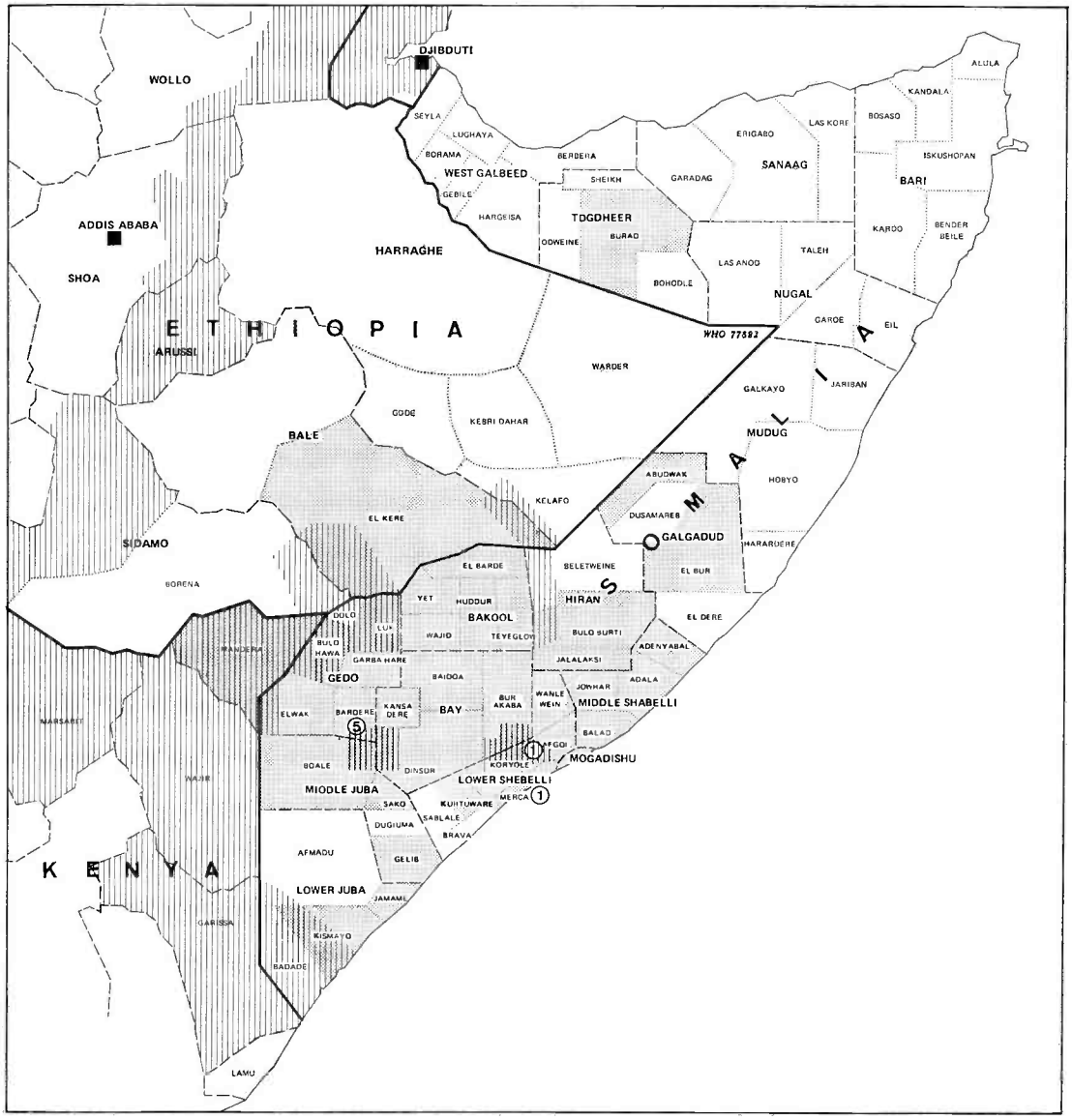
8.49 During the first half of 1976 the last smallpox foci were localized in southern Ethiopia. During the summer of the same year, when these foci were about to be eliminated, smallpox occurred in southern Somalia. Subsequently, at the end of 1976, there was an outbreak in northern Kenya, where the index case was believed to have come from southern Somalia.

8.50 Since the chains of transmission linking these outbreaks could not be documented, despite intensive investigations carried out by national/WHO teams, WHO sponsored a coordination meeting in Nairobi in March 1977. The situation was appraised by national and WHO epidemiologists from Ethiopia, Kenya, Somalia and Sudan. Operations in the Ogaden area were recognized as being crucial to the ultimate success of the global smallpox eradication effort; it was therefore decided that a special joint surveillance containment operation should be conducted by Ethiopia, Kenya and Somalia.

8.51 In southern Somalia, the search operation revealed widespread smallpox epidemics in April-June 1977, and WHO collaborated in organizing emergency measures. UNDRO provided a number of vehicles, spare parts and supplies, which were airlifted to Mogadishu. In June, at the height of the epidemic, 24 WHO epidemiologists and 3500 national field workers were engaged in the campaign. Somalia recorded 3400 cases in 1977, but intensive containment activities rapidly brought the outbreaks under control, and the last known case (as of January 1978) was notified in October 1977 (Fig. 8.3).

8.52 Ethiopian smallpox search operations in the Ogaden were virtually interrupted from July 1976. In September, with the collaboration of the International Committee of the Red Cross, new outbreaks were detected, but these were quickly contained. The last known cases were recorded in November 1976. However, months of continuing search will be needed in order to ensure that foci are completely eliminated.

8.53 In 1976 and 1977, international commissions set up by the Organization for the certification of smallpox eradication visited 7 countries in Asia, 15 countries in



Areas reporting smallpox since 1976.

High-risk areas.

The ringed numbers indicate the location and number of pending outbreaks (i.e., outbreaks where six weeks had not yet elapsed since the onset of rash in the last case).

Fig. 8.2 The Ogaden area: location of pending smallpox outbreaks as of 26 November 1977 and areas considered to be at high risk for undetected foci.

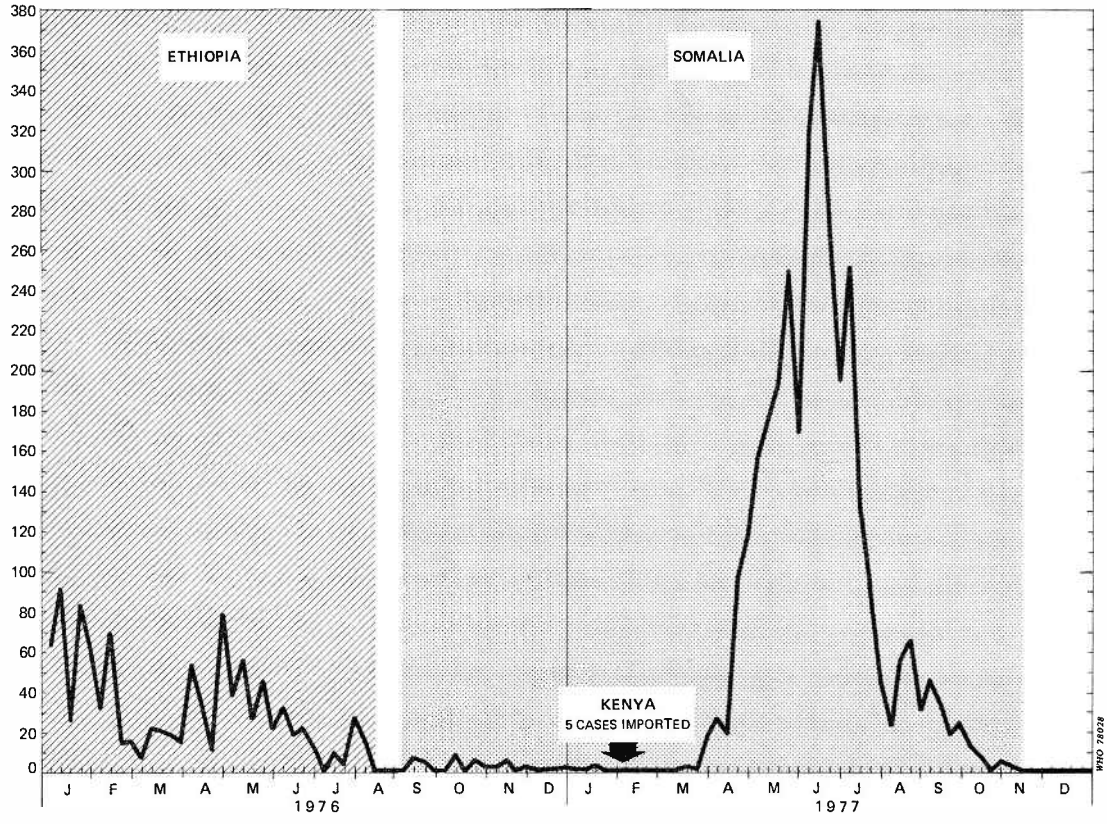


Fig. 8.3 Smallpox cases reported by week, 1976–77.

West Africa and 9 countries in Central Africa. Smallpox was certified as eradicated in these 31 countries after the commissions made field visits and appraised the documentation on the national eradication programmes, including the special surveillance activities in operation for at least two years after the date of the last known smallpox case. Certification remains to be carried out in some countries in East and Southern Africa and in the Eastern Mediterranean area, where smallpox was until recently endemic or had occurred in neighbouring countries (Fig. 8.4).

8.54 Early in 1976 WHO installed a smallpox vaccine reserve of 300 million doses in Geneva, in case unexpected emergencies arise. By the end of 1977, 120 million doses were being stored, donated by 10 countries.

8.55 Seven WHO collaborating centres for smallpox and related orthopoxviruses continue to study the problem of animal reservoirs of smallpox and other orthopoxviruses. Human monkeypox surveillance was conducted by national/WHO teams in Ivory Coast, Liberia, Nigeria and

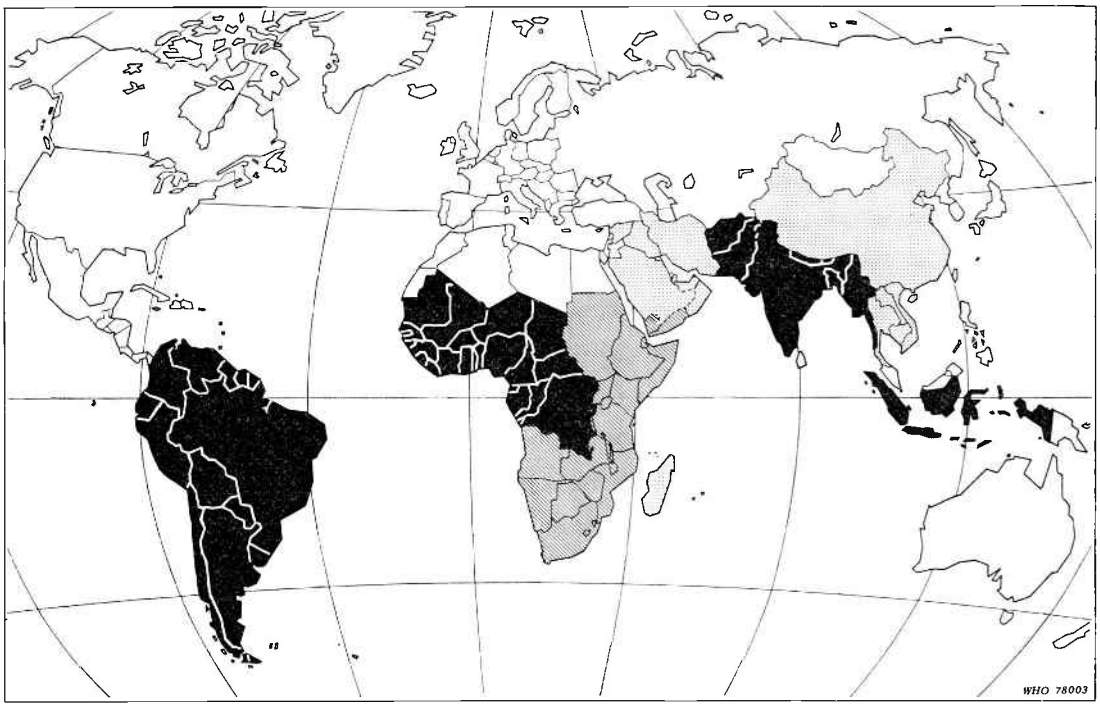


Fig. 8.4 Plan for global certification of smallpox eradication by the end of 1979.

Sierra Leone in 1976, and in Zaire in 1977. These studies produced no evidence of an animal reservoir of smallpox or of animal poxviruses that could jeopardize the global smallpox eradication programme.

8.56 Variola virus stocks or specimens in laboratories now constitute the only potential danger for the reintroduction of smallpox into the community. A survey of laboratories maintaining variola virus was conducted between 1975 and 1977. WHO contacted 181 countries and territories and more than 500 laboratories. Of 72 laboratories registered as maintaining variola virus, 60 destroyed the virus or transferred their stocks to WHO collaborating centres. By the end of 1977, 12 laboratories maintained the virus; their number will be further reduced. In August 1977, a group of experts recommended specific safety measures for laboratories maintaining variola virus.[1]

8.57 In October 1977 participants at a WHO consultation on worldwide certification of smallpox eradication reviewed the remarkable international cooperation that had made the programme successful. They recommended that the Organization should expedite certification work during the next two years so that worldwide smallpox eradication can be officially concluded and declared in accordance with certification criteria. When this occurs, the discontinuance of smallpox vaccination will be recommended.[2]

[1] *Report of a workshop meeting on safety measures in laboratories retaining variola virus* (document WHO/SME/77.2).

[2] *Weekly Epidemiological Record*, 53 : 15 (1978).

Expanded Programme on Immunization

8.58 The Expanded Programme on Immunization has its basis in resolutions adopted by the World Health Assembly in 1974 (WHA27.57), 1976 (WHA29.62) and 1977 (WHA30.53, WHA30.54). It is a worldwide collaborative programme of Member States, with the objective of (1) providing immunizations for all children of the world by 1990, concentrating particularly on immunizations against diphtheria, pertussis, tetanus, measles, poliomyelitis and tuberculosis; and (2) reducing morbidity and mortality from other selected diseases of public health importance for which safe and effective vaccines currently exist or become available.

Planning, training and operations

8.59 The policies established in resolution WHA30.53 served as a basis for developing in 1977 a draft manual of operations for use as a guide in the preparation of detailed regional and country plans and as a resource for staff training at all levels.

8.60 During 1976–77 regional advisers responsible for the programme were designated and a full-time programme manager was appointed at WHO headquarters, where there is now a staff of 12. A WHO working group on the programme, attended by government representatives and regional and headquarters staff, met in December 1976. Regional advisers met in May and November 1977 to discuss joint problems and coordinate global policies. By the end of 1977, one interregional and six regional training seminars had been held, attended by participants from over 60 countries, as well as representatives of international, voluntary and national development agencies. Activities were initiated in many of those countries. During 1977, three films dealing with various aspects of the programme were completed with direct WHO participation, and a fourth film was in preparation.

Research and development

8.61 Highest priority was accorded to operational rather than basic research.

8.62 *Vaccines.* Support from UNDP permitted WHO to investigate the possibility of increasing the stability of measles and poliomyelitis vaccines as well as the pertussis component of diphtheria/pertussis/tetanus vaccines. The possibility of decreasing the reactogenicity of the pertussis component was also being investigated. In addition, the stability of BCG vaccine was being evaluated.

8.63 *Immunization schedules.* Studies were underway to determine the optimum age for measles vaccination. The possibility of completing diphtheria/pertussis/tetanus immunizations with two doses rather than the usual three doses was being investigated.

8.64 *Improving the cold chain.* Prototypes were being developed for (1) a refrigerator and freezer capable of being operated on multifuel sources, (2) a cold box suitable for transporting vaccines by vehicle in developing countries, and (3) a vaccine container suitable for use by primary health workers in developing countries. Three commercially available chemical and biological enzyme-based indicators were being tested for their suitability as indicators of vaccine potency during storage. The performance characteristics of a wide range of existing refrigerators, freezers, icemakers, and cold boxes in tropical conditions were also being tested.

8.65 *Improving techniques of vaccine administration.* Arrangements were made for

extensive comparative testing of five commercially available jet injectors. During 1976–77, additional studies were completed on the feasibility of giving BCG vaccinations with a bifurcated needle. In 1977, a study was also planned for 1978–79 to determine the feasibility of administering a concentrated tetanus toxoid with a bifurcated needle.

8.66 *Improving immunization coverage rates.* In two developing countries, WHO supported field studies to examine coverage rates, seroconversion rates and operational costs; the use of mobile health teams was also compared with the use of fixed health centres. In addition, a project was formulated that will analyse the major motivational opportunities available at the village level for promoting childhood immunizations.

8.67 *Programme management.* Studies were planned for evaluating the full range of managerial tasks required to provide an immunization programme with adequate supplies of potent vaccine; knowledge gained from the study will be incorporated in the training of national staff responsible for vaccine supplies. Studies were also planned to evaluate the feasibility of training selected villagers to be the primary reporting sources in disease surveillance schemes at the village level.

8.68 *Vaccine production.* A project supported by UNDP permitted WHO to increase the quality control of vaccines both in countries already producing vaccines and in countries about to start vaccine production. The project, which is still continuing, provides for (1) the preparation of manuals for the production and quality control of diphtheria/pertussis/tetanus vaccines, (2) the designing and selection of equipment for both production and control laboratories, (3) the training of laboratory workers in the quality control of vaccines, and (4) the support of research on more stable vaccines (see above). During 1977, the manuals were written, advice was provided on laboratory design and equipment, a seminar on vaccine production and quality control was conducted in Geneva, a training course for quality control of virus vaccines was held in London, a meeting of experts in production and quality control was convened in Geneva to discuss problems concerning pertussis vaccine, and progress was achieved in several areas of vaccine research.

Financial support from outside WHO

8.69 Outside support provides the major basis for extending the activities of the Expanded Programme on Immunization. Table 8.1 summarizes extrabudgetary assistance received by the programme up to the end of 1977.

Bacterial and virus diseases

Cholera and other bacterial enteric infections

8.70 Both the recrudescence of cholera in the Eastern Mediterranean area on the eve of the Mecca pilgrimage and the occurrence of cholera in the Gilbert Islands in the Pacific caused serious concern, and the countries affected received technical and material aid from WHO.

8.71 A major activity was the creation in headquarters and in regional offices of interdisciplinary working groups on diarrhoeal diseases. While recognizing the importance of a multidisciplinary approach to the control of diarrhoeas, these groups gave priority to the promotion of oral rehydration as an element of primary health care in the management of dehydration associated with diarrhoeas. The use of oral

Table 8.1 Extrabudgetary contributions (US$) in respect of immunization, 1976–77 [a]

	1976	1977	
	(Received)	(Received)	(Pledged)
For unspecified activities			
Nigeria	16 036		
Saudi Arabia	10 000		
Dr Insan Dogramaci, Ankara		20 000	
Japan Shipbuilding Industry Foundation (Sasakawa Health Fund)		80 000	
For vaccines			
Switzerland		7 843	
United Kingdom		96 590	165 000
Yugoslavia	28 730	33 813	56 797
Medimpex, Hungary		7 960	
For specified activities			
Iran—for Pakistan	344 876		
Kuwait—for Democratic Yemen, Somalia and Sudan	150 000		350 000 [b]
Sweden—for feasibility studies in Ghana	82 898	37 422	
	632 540	283 628	571 797
Other			
Miscellaneous	29	200	
Interest	20 000		
	652 569	283 828	571 797

[a] In 1975, extrabudgetary contributions to the Voluntary Fund for Health Promotion (Special Account for the Expanded Programme on Immunization) totalled US$ 229 200 (mainly from Botswana, the Netherlands and Sweden). Up to the end of 1977, a total of US$ 182 000 had been pledged for each of the years 1978 and 1979 (by the United Kingdom). In addition to the contributions and pledges indicated in the table, extrabudgetary assistance was received from Denmark (under the Special Account for Miscellaneous Designated Contributions—US$ 61 336 in 1976 and US$ 86 090 earmarked in 1977 for regional and interregional seminars) and from UNDP (US$ 237 200 for an interregional project to provide developing countries in 1977 and 1978 with vaccines of good potency and acceptably low toxicity, and vaccines with increased stability at high ambient temperatures).

[b] For use over the 9 years beginning 1977.

rehydration was found to reduce the need for expensive intravenous fluid in severe diarrhoeas, including cholera, and to help children to gain weight; field studies in the Lao People's Democratic Republic, Philippines and Turkey proved its effectiveness. Similar field studies were undertaken in several countries in Asia, Africa and Latin America. A simple guide was published.[1] UNICEF collaborated closely with WHO in this activity. The interregional cholera team visited 4 regional offices and 16 countries to assist cholera emergency programmes and the implementation of oral rehydration.

8.72 Cholera vaccine containing aluminium hydroxide as adjuvant was field-tested in Indonesia and was found to offer improved protection in children below the age of five years, but no significant progress was made in the development of vaccines against other enteric infections; hence the need to promote measures such as oral rehydration. In view of epidemiological considerations and the low effectiveness of drugs and vaccines, continued emphasis is required on the promotion of basic sanitary measures and health education.

[1] World Health Organization. *Treatment and prevention of dehydration in diarrhoeal diseases.* Geneva, 1976.

Other acute bacterial diseases

8.73 Technical cooperation with developing countries in the diagnosis and control of other acute bacterial diseases with a high morbidity and mortality (pertussis, tetanus, diphtheria, cerebrospinal meningitis, other coccal infections, and plague) was gradually improved. These activities were supported by WHO collaborating centres,

which continued to assist in the preparation of simplified guidelines for the diagnosis and treatment of these diseases, as well as in research and reference work.

8.74 There was considerable public concern regarding severe reactions arising from vaccination against pertussis, and a WHO cooperative study on the toxicity and reactogenicity of diphtheria/pertussis/tetanus vaccines was carried out with the participation of 13 national laboratories. Its results indicated an urgent need to standardize laboratory tests currently used for controlling the toxic properties and potency of such vaccines. Research on new or improved pertussis vaccines of low toxicity was undertaken. Dried stable diphtheria/pertussis/tetanus vaccine was developed and tested successfully both in the laboratory and the field.

8.75 The stability of polysaccharide meningococcal vaccines of serogroups A and C was increased and a new protein vaccine of serogroup B was ready for trial in human subjects. New vaccines against pneumococcal infections and diseases caused by *Haemophilus influenzae* were under study.

8.76 A WHO cooperative study involving 22 national laboratories evaluated reference activity in the field of streptococcal infection at national and international levels.

Leprosy

8.77 Action taken in accordance with World Health Assembly resolutions adopted in 1974 (WHA27.58), 1975 (WHA28.56), 1976 (WHA29.70), and 1977 (WHA30.36) resulted in three main developments in 1976–77: the convening of the Expert Committee on Leprosy, a review of direct technical cooperation in leprosy control, and intensification of leprosy research activities.

8.78 *WHO Expert Committee on Leprosy.*[1] At its fifth meeting, in Geneva in October 1976, the Committee recommended guidelines for the formulation and management of leprosy control programmes as an integrated element of community health care. Specific recommendations were also made on manpower development. Secondary dapsone resistance of *Mycobacterium leprae* in multibacillary cases was identified as being a serious problem; the use of combined therapeutic regimens in such cases was recommended. The Committee also stressed the need for adequate information support.

8.79 In line with the Committee's recommendations, WHO participated in three other meetings: the First International Workshop on the Training of Leprosy Workers in Asia, held in Bangkok in November 1976, jointly sponsored by the Government of Thailand and the Japan Shipbuilding Industry Foundation (Sasakawa Health Fund); the First International Workshop on the Chemotherapy of Leprosy in Asia, held in Manila in January–February 1977, jointly sponsored by the Government of the Philippines and the Japan Shipbuilding Industry Foundation (Sasakawa Health Fund); and a joint meeting of representatives of the International Federation of Anti-Leprosy Associations and LEPRA, United Kingdom, held in London in August 1977. The Bangkok meeting reviewed the need for training in leprosy in the South-East Asia and Western Pacific Regions; WHO subsequently cooperated in identifying institutions in the two regions that could increase their training capacity. The Manila and London

[1] WHO Technical Report Series, No. 607, 1977.

meetings prepared guidelines for the field application of therapeutic regimens.

8.80 *Technical cooperation in leprosy control.* The period 1976–77 saw increasing acceptance of leprosy project formulation as a component of country health programming. WHO's tasks for the future in the strengthening of leprosy control were defined. Recommendations were made on improved coordination at country level through the use of advisory groups.

8.81 Cooperation with UNICEF and the International Leprosy Association continued. The International Union against Tuberculosis also began cooperating with voluntary agencies in the field of leprosy. Important financial contributions were received from a number of voluntary agencies, including the Danish Save the Children Fund, the Deutsches Aussätzigen Hilfswerk, Emmaüs-Suisse, the Japan Shipbuilding Industry Foundation (Sasakawa Health Fund), and the Lepers' Trust Board, New Zealand, and from the Order of Malta.

8.82 In the African Region, a combined tuberculosis and leprosy population survey (1974–March 1977) completed in Upper Volta confirmed the considerable reduction (75%) in the prevalence of leprosy achieved by mobile units in recent years. In the Region of the Americas, as part of the 10-year health plan for 1971–80, countries with a leprosy problem set targets for 1980 in the reduction of prevalence. In the South-East Asia Region the mass-scale rifampicin drug trial was continued in the Mandalay area of Burma; significant epidemiological results, reproducible in other countries, are expected. In the Western Pacific Region, a regional leprosy advisory team began operations in 1977. In Viet Nam, the strengthening of the leprosy control programme received priority; substantial extrabudgetary resources were made available through WHO.

8.83 *Research.* During 1976–77 WHO supported collaborative research in 52 projects in 24 countries.

8.84 In October 1976 a workshop held in Baltimore, USA, identified research priorities for the Region of the Americas. A second workshop, "The armadillo: a model for leprosy research", took place in May 1977 in Caracas, Venezuela. The recommendations of both meetings were endorsed by the Regional Advisory Committee on Medical Research.

8.85 The National Institute of Dermatology of Venezuela was established as the Pan American Center for Research and Training in Leprosy and Other Tropical Diseases. In October–November 1977 the Center's Director and the Regional Adviser in Leprosy visited countries to explain the services available through the Center and to encourage the development of national programmes.

8.86 The twelfth USA-Japan Leprosy Research Conference, held in Boston, USA, in September 1977, devoted particular attention to problems relating to the biology of *M. leprae* and immunological mechanisms in the host-organism relationship.

8.87 There are two aspects to the leprosy component of the Special Programme for Research and Training in Tropical Diseases—a programme on research in the immunology of leprosy and one on research in the chemotherapy of leprosy; in 1977 the Special Programme funded 24 immunology projects in 11 countries and 21 chemotherapy projects in 9 countries.

8.88 In immunology, the observation that killed *Mycobacterium leprae* can induce cell-mediated immunity in experimental

animals and protect mice from *M. leprae* infection gives further hope of vaccine development; additional studies, including vaccine tests in armadillos, are planned. Work has also continued on the development of a skin-test for the detection of subclinical leprosy infection; studies are being carried out on the purification of two different *M. leprae* antigens in an attempt to obtain more specific preparations.

8.89 The planning committee on the chemotherapy programme met in April 1976 and identified four major objectives: (1) assessment of the prevalence of dapsone resistance by means of field surveys; (2) controlled trials of combinations of existing drugs in lepromatous leprosy; (3) laboratory studies designed to provide information on the tools necessary to attain the first two objectives; and (4) the development of new effective drugs. The relevant Scientific Working Group first met in April 1977 and adopted a standard protocol for chemotherapy trials; trials in previously untreated patients with lepromatous leprosy are now in the preparatory stage at two treatment centres in leprosy-endemic countries, in collaboration with three specialized laboratories. In addition, three drug-development projects were begun—two on the synthesis of new clofazimine analogues, and the third on the mechanism of action of chaulmoogric acid. Eighteen projects relevant to the other objectives were also undertaken.

8.90 In addition, new studies on epidemiology and *M. leprae* cultivation are under consideration; in this connexion, preliminary steps and pilot studies are currently being undertaken, partly in conjunction with the trans-disease Scientific Working Group on subjects relevant to epidemiology.

8.91 Within the framework of the Special Programme's leprosy component, and in close liaison with the Regional Advisory Committees on Medical Research, efforts were made to strengthen research capabilities in the affected countries. A good example of this policy is the initiative taken by the Regional Office for South-East Asia, which convened a study group on leprosy research in February 1977. The group made recommendations forming the outline of a Regional plan for research in leprosy, subsequently endorsed by the Regional Advisory Committee on Medical Research. In the other regions also, countries are being increasingly involved in the preparation of research plans, in co-operation with the Special Programme's global Scientific Working Groups.

Tuberculosis and other respiratory infections

8.92 Tuberculosis remains a problem of considerable public health importance in many parts of the world. Programme evaluation projects revealed the organizational weakness of the treatment component of national programmes resulting in serious shortcomings regarding the all-important regularity of drug ingestion, motivation of patients, and follow-up. At the global level, this situation is reflected in the slow decline that has occurred in mortality rates despite the therapeutic efficacy of modern drug regimens. The number of deaths from tuberculosis is estimated to exceed half a million each year, the bulk (74%) of this heavy toll occurring in Asian countries.

8.93 The need for continued epidemiological surveillance of tuberculosis at the national and international levels was the subject of a Symposium on Tuberculosis Surveillance, organized in Brno, Czechoslovakia, by the WHO Regional Office for Europe, with the active participation of the International Union against Tuberculosis.

The meeting emphasized the importance of agreeing on appropriate and practical criteria for the epidemiological, social and economic evaluation of the impact made by tuberculosis control programmes, and of uniform, complete recording and reporting. A reporting system based on the bacteriological diagnosis was recommended.

8.94 The demand for wider, more intensive distribution of current technical knowledge and guidance on the planning, implementation, management and evaluation of integrated national tuberculosis control programmes was met as follows: (1) by training various categories of key workers at the international, regional and national levels, (2) by the participation, in close collaboration with the International Union against Tuberculosis, in seminars (in Egypt, Kuwait, Peru and Syrian Arab Republic), workshops and conferences (Finland, Republic of Korea and Turkey), and scientific committees (on diagnostic methods, bacteriology and immunology, treatment, prevention, epidemiology, and animal tuberculosis); and (3) through cooperation in national programmes (for instance, in Afghanistan, Algeria, Argentina, Bangladesh, Bolivia, Brazil, Burma, Indonesia, Maldives and Venezuela). At the request of the Government of the United Republic of Tanzania, WHO and the International Union against Tuberculosis cooperated in conducting a national seminar and, subsequently, in reformulating the national tuberculosis control programme. A technical guide for sputum examination was developed jointly by the International Union against Tuberculosis and WHO.[1]

8.95 As regards the prevention of tuberculosis, preparations were made to deliver BCG vaccination as part of the Expanded Programme on Immunization. A consultation was held on "The choice of a BCG strain" for the production of freeze-dried vaccine, and technical guides on the WHO-sponsored international quality control of BCG vaccine were drawn up.[2] Investigations into various BCG vaccination techniques and their operational implications were completed, and trials continued regarding the protection afforded in different ethnic and age groups, its duration, dose-dependence, and possible interference with ecological factors such as mycobacteria other than tuberculosis. The Organization cooperated with the Indian Council of Medical Research in a consultation on the methodology and implementation of the Council's tuberculosis prevention trial. Research projects continued also in the fields of epidemiology, surveillance, immunology, bacteriology, short-course chemotherapy, and the operational aspects of programme delivery.

8.96 Acute respiratory infections are one of the principal causes of morbidity and mortality in many countries. A study was made of the magnitude of this problem; 88 countries were found to report more than 660 000 deaths from acute respiratory infections each year, i.e., 6.3% of the total deaths and over 20% of deaths in children. In an endeavour to assess the situation, visits were made to a number of countries in the African, American, European and Eastern Mediterranean Regions and investigations were begun to identify possible control measures, curative and preventive. In 1978 acute respiratory infections will be the subject of a new programme.

[1] International Union against Tuberculosis. *Technical guide for collection, storage and transport of sputum specimens and for examinations for tuberculosis by direct microscopy*. Paris, 1977.

[2] *WHO-sponsored international quality control of BCG vaccine* (document WHO/TB/TECHNICAL GUIDE/77.8); *In vitro assays of BCG products* (document WHO/TB/TECHNICAL GUIDE/77.9).

Sexually transmitted diseases and endemic treponematoses

8.97 The results of studies indicated that sexually transmitted diseases may affect 10–20% of the population in some countries and may lead to severe complications, particularly in countries where health services are not well developed. The problem is aggravated by the increasing resistance of the gonococcus to antimicrobial treatment; in certain areas, for example, the proportion of strains fully sensitive to penicillin is known to have decreased by an average of 6–7% annually in recent years. Moreover, gonococcal strains have emerged that are completely resistant to penicillin. A system was developed to monitor the spread of these strains. Health administrations were kept informed on the global situation and on methods for the identification and control of resistant strains. In addition, administrations were encouraged to establish treatment schedules based on the local gonococcal sensitivity pattern and cost/effectiveness considerations. Reports from many countries indicate that non-gonococcal urethritis and vaginitis are now more frequently seen than gonorrhoea.

8.98 Diagnostic facilities and curative and control services remain inadequate in some areas, and cooperative research was directed primarily towards developing simplified, low-cost diagnostic and control technologies. For instance, field evaluation was begun of a gonococcal culture medium that is considerably cheaper than the conventional medium. In one country, assessment was begun of the impact of a simplified control approach that can be applied in health care units not yet supported by a laboratory diagnostic service. Support was provided to some research groups in developing countries to obtain data essential for formulating a national control programme. A WHO Scientific Group in 1976 reviewed recent advances in gonococcal research and outlined promising areas of basic and applied research that may lead to improved techniques of diagnosis, treatment, prevention and control.[1] The programme for the control of sexually transmitted diseases in Viet Nam was supported by a voluntary contribution from the Government of Australia, WHO acting as intermediary.

8.99 In the course of a WHO symposium, representatives from countries in the European Region agreed on the technologies to be applied in the surveillance and control of sexually transmitted diseases; the importance was stressed of providing general practitioners with guidance on the diagnosis and treatment of these diseases (a manual is in preparation). As part of the European Region's programme on economic aspects of communicable diseases, a start was made on developing working protocols that can be used in multinational studies aimed at assessing the economic burden imposed by sexually transmitted diseases.

8.100 Training and refresher programmes were established on the subject of laboratory diagnostic, clinical and epidemiological aspects of the control of sexually transmitted diseases. Workshops were held for the Philippines and for the Andean area. In addition, consultative services were provided for six countries.

8.101 Yaws and bejel, the prevalence of which diminished substantially following WHO/UNICEF mass campaigns, again became rampant in some areas. WHO devised procedures for the evaluation and active surveillance of these diseases and assisted, in collaboration with other agen-

[1] WHO Technical Report Series, No. 616, 1978.

cies, in establishing programmes for systematic control in some countries.

Virus, chlamydial, rickettsial and related diseases

8.102 The WHO virus diseases programme consists of surveillance activities, support to laboratory development for viral diagnosis, support to prevention and control measures and encouragement of applied research. A meeting of directors of collaborating centres in 1977 made technical recommendations on future activities in this field, and in particular the development of laboratory surveillance of viral diseases in subtropical and tropical countries. Following an informal consultation held at the Pasteur Institute, Paris, in 1976,[1] a study was undertaken, together with national laboratories and WHO collaborating centres, of rapid techniques for identifying virus infections, in order to evaluate their potential usefulness and the technological problems involved.

8.103 *Influenza.* In January 1976, the virus A/New Jersey/76 isolated during an epidemic in a military camp in the USA was found to resemble the virus of swine influenza which caused the 1918 pandemic. In less than two months an attenuated recombinant strain was made available to vaccine producers. In April, an informal consultation held in Geneva advised public health services on appropriate measures.[2] The virus fortunately did not spread and in 1976 and 1977 the variant A/Victoria/3/75 remained the prevalent strain, together with B/Hong Kong/5/72, and both caused only moderate outbreaks. WHO intensified the surveillance carried out by the network of national influenza centres and organized three training workshops on new techniques for directors of these centres. In December 1977 the national influenza centres in Moscow and Hong Kong isolated strains of a new influenza virus, A/USSR/90/77, found to be related to the virus A/FM/1/47 (H1N1) which was prevalent all over the world from 1947 to 1957. In less than two weeks all national influenza centres were alerted and provided with the necessary reagents to carry out adequate surveillance, and the appropriate strain was made available to vaccine producers.

8.104 *Measles.* There is some uncertainty about the best age for immunization of children in Africa, where the disease is particularly severe. A collaborative study with the Ministry of Health of Kenya showed that 90% of children no longer have maternal antibodies at 7–8 months of age, when the incidence of measles begins to rise sharply. Almost all children vaccinated at this age showed a satisfactory seroconversion.[3]

8.105 *Poliomyelitis.* The epidemiology of poliomyelitis is now changing. Active surveillance of the disease necessitates serological surveys and laboratory identification of "wild" type and attenuated strains of poliovirus. Increased laboratory support for surveillance was established and provided satisfactory results in countries in the Eastern Mediterranean Region.

8.106 *Infantile viral gastroenteritis.* Rotaviruses were characterized in faeces by means of immune electron microscopy and found associated with 50–75% of acute gastroenteritis in infants in temperate climates. Collaborative studies were undertaken to ascertain their possible public health importance in various parts of the world, particularly in tropical climates.

[1] *Bulletin of the World Health Organization*, 55 : 33 (1977).

[2] *Bulletin of the World Health Organization*, 53 : 1 (1976).

[3] *Bulletin of the World Health Organization*, 55 : 21 (1977).

8.107 *Viral hepatitis.* An Expert Committee in 1976 reviewed important advances in the field of hepatitis A and B.[1] A seminar held jointly by WHO headquarters and four Regional Offices (Africa, South-East Asia, Eastern Mediterranean, and Western Pacific) in Kuala Lumpur in 1977 examined the basis on which appropriate surveillance of hepatitis A and B could be established in the countries and considered the prospects of vaccination in warm-climate countries with a high incidence of hepatitis B.

8.108 *Arbovirus and Ebola virus infections.* During 1976–77 limited outbreaks of yellow fever occurred in South America, and a very few cases were notified in Africa. Dengue haemorrhagic fever became endemic in Indonesia and Burma in addition to Thailand, where a Collaborating Centre on the Immunopathology of Dengue Haemorrhagic Fever was created in 1976. The appearance in 1977 of dengue virus type 1 in the Caribbean area, where types 2 and 3 already existed, gave rise to a continuing threat of outbreaks of haemorrhagic fever. In 1976, WHO was requested to help identify and circumscribe two dramatic outbreaks of viral haemorrhagic fever which occurred simultaneously in southern Sudan and northern Zaire. A new virus, Ebola virus, resembling Marburg virus, was characterized in high-security laboratories. WHO staff members and consultants were sent to the sites of the outbreaks as part of the activities of WHO Emergency Aid in Epidemics. A reserve of disposable protective clothing was constituted. To assist countries in the management of these and other viral infections, two publications were issued by the Organization.[2, 3] In 1976 an international symposium on haemorrhagic fevers was held in Argentina, where a national centre for their study was established, and in 1977 WHO co-sponsored a colloquium on viral haemorrhagic fevers, organized by the Prince Leopold Institute of Tropical Medicine in Antwerp, Belgium.

8.109 *Chlamydial infections.* Chlamydiae are now increasingly recognized as agents of sexually transmitted diseases. An outline of recommended criteria for their laboratory diagnosis was published.[4]

8.110 *Rickettsial infections.* Recent developments and trends in rickettsial infections were reviewed at an international symposium organized in Bratislava, Czechoslovakia, in 1976. Special attention was given to the laboratory diagnosis of louse-borne typhus in areas where the disease continues to be endemic and is an important cause of morbidity and mortality. Five leading rickettsial laboratories agreed to develop simplified standard methods and to make available the necessary reagents.

Veterinary public health [5]

Zoonoses centres

8.111 Experience with the Pan American Zoonoses Center showed that such institutions at regional or interregional level, with their coordinating and catalysing functions, serve countries best in their efforts to mobilize resources and mutual assistance. A coordinating centre was

[1] WHO Technical Report Series, No. 602, 1977.

[2] Madeley, C. R. *Guide to the collection and transport of virological specimens.* Geneva, World Health Organization, 1977.

[3] Simpson, D. I. H. *Marburg and Ebola virus infections: A guide for their diagnosis, management and control.* Geneva, World Health Organization, 1977 (WHO Offset Publication No. 36).

[4] *Bulletin of the World Health Organization*, **54**: 245 (1976).

[5] For veterinary public health activities relating to food hygiene and food safety, see page 161.

established in Athens to promote international cooperation in the control of rabies and hydatidosis in Mediterranean countries. The control of other diseases (brucellosis, leptospirosis and cysticercosis) will be incorporated in subsequent phases of the centre's programme. Similar centres are being planned for East Africa, West and Central Africa and some South-East Asian and Eastern Mediterranean countries. The establishment of centres for the control of zoonoses constitutes an important development in the prevention and control of these diseases.

Control of rabies and other zoonoses

8.112 The spread of rabies gave rise to emergency situations in some countries. WHO assisted in such cases, particularly in Africa. Some successes in rabies control were reported from South American countries. Comparative studies on potency tests for rabies vaccines and field trials on different tissue culture vaccines were initiated to improve the protective measures.

8.113 In November 1977 the Second European Conference on Surveillance and Control of Rabies, held in Frankfurt am Main, Federal Republic of Germany, endorsed proposals for improved methods of wildlife rabies control, which were a major achievement of the FAO/WHO Coordinated Research Programme on Wildlife Rabies in Europe. In order to provide the epidemiological services required for this rational control procedure, a European Rabies Surveillance System was established.

8.114 WHO promoted international cooperation in the control of cysticercosis and echinococcosis (hydatidosis) (a joint FAO/UNEP/WHO meeting), brucellosis (WHO consultations held in Spain for Mediterranean countries), mycotic zoonoses and leptospirosis (planning meetings held in Geneva).

Prevention and control of zoonoses and environmental pollution from animal sources

8.115 Animal environmental factors as human health hazards were the major concern of a meeting of experts held in Rome. Particular attention was paid to the health risks associated with large-scale animal production and intensive farming. Recommendations for a WHO policy and international collaboration were elaborated which should lead to codes of practice for the prevention of human disease at all stages of farm management, production of food of animal origin, and disposal and recycling of animal wastes. There is an urgent need to cope with the health risks associated with animals in urban areas; the Rome meeting recommended action aimed at preventing or minimizing such risks.

Comparative medicine

8.116 In the field of comparative medicine, the advancement of knowledge of human diseases is furthered through study of comparable conditions in animals. Research using animal models for human disease continued to receive WHO support. A WHO meeting of investigators dealt with studies on animal models to determine the cause and prevention of non-genetic developmental defects where some environmental factors are considered to be of increasing importance.[1]

8.117 The programme on the ecology of influenza viruses in animals and their relation to human influenza was expanded. A number of new strains of influenza virus with new properties were isolated from a large number of bird species. In some areas up to 5% of apparently normal migrating birds were found to be carrying

[1] *Bulletin of the World Health Organization*, **55**: 475 (1977).

virus. Some strains isolated from these birds were indistinguishable from human strains of Victoria/75 (H_3N_2).

Vector biology and control

8.118 The function of WHO's vector biology and control programme is to develop materials, methods and strategies for the control of arthropod vectors, rodent reservoirs and snail intermediate hosts of disease. Investigations in all fields relating to vector control and the safe use of pesticides are being carried out in collaboration with Member States and certain United Nations bodies. In recent years vector control has been achieved mainly through the use of chemicals. This approach has given rise to problems such as pesticide resistance, hazards to non-target organisms including man, and environmental contamination. A programme of research is now underway to develop better chemical and non-chemical methods of control. The Organization carried out a review of the situation and prepared a document on pest/vector management systems [1] in collaboration with UNEP and FAO.

Ecology and chemical control

8.119 *Vector resistance.* The WHO Expert Committee on Insecticides stated that resistance to pesticides is probably the biggest single obstacle to vector control and is one of the main reasons why malaria eradication has been unsuccessful in many countries.[2] About one-third of all malaria programmes face a vector resistance problem. During the past two years this problem was studied in Central and South America (*Anopheles albimanus*), in the Eastern Mediterranean area and the Indo-Pakistan subcontinent (*An. culicifacies* and *An. stephensi*), and in Turkey (*An. sacharovi*).

8.120 Additional standardized resistance test methods were being developed for blackflies, snails and fish, a major non-target organism.

8.121 WHO collaborating centres in Europe and the USA continued to carry out research on cross-resistance and speed of development of resistance, with special emphasis on insecticides showing operational promise.

8.122 *Testing and evaluation of new insecticides.* The number of new candidate pesticides from industry has diminished considerably in the last few years. The WHO programme for the testing and evaluation of insecticides was reorganized so that the few new chemicals produced can be evaluated more rapidly. Compounds already in the scheme were being re-evaluated in new types of formulations for both malaria control and for the control of other vectors, especially *Simulium* and *Glossina*. Some synthetic pyrethroids appeared to be promising ; relevant safety aspects were being investigated in cooperation with WHO collaborating centres in France, the United Kingdom, the USA and Yugoslavia.

8.123 *Vectors of malaria.* Several pyrethroids were tested in hut [3] trials by the WHO collaborating centre in Upper Volta and two were subjected to small village-scale trials against *An. gambiae* and *An. funestus* at the WHO Anopheles Control Research Unit in Nigeria. In large-scale

[1] United Nations Environment Programme. *Overview in the priority subject area: Health of people and of the environment* (UNEP Report No. 2), 1977.

[2] WHO Technical Report Series, No. 585, 1976, p. 7.

[3] Huts are specially constructed with traps for estimating the number of mosquitos entering and leaving.

trials organized by this unit, chlorphoxim and pirimiphos-methyl proved effective in controlling *An. gambiae* and *An. funestus* for three months and were found safe for use.

8.124 A large-scale epidemiological trial of fenitrothion was concluded at Kisumu, Kenya, in an area inhabited by about 50 000 people.[1] Excellent control of *An. gambiae* and *An. funestus* was achieved throughout the trial and a marked and rapid decrease in the numbers of malaria cases was observed. The last spray round was effective for almost one year.

8.125 Two field trials of mosquito adulticides were carried out in Indonesia at the USAID-supported Semarang Sub-Unit of the Vector and Rodent Control Research Unit against DDT-dieldrin-resistant *An. aconitus*, the main vector of malaria in Indonesia (Java). One residual application of fenitrothion provided good control of *An. aconitus* during the whole breeding season of this species. However, ultra-low-volume application produced only transitory results. Residual application of malathion controlled the vector for only a short period after application.

8.126 The Organization cooperated with Indonesia, Pakistan and Turkey in evaluating their antimalaria activities and in preparing detailed plans for future action, and with Burma in analysing the vector control component of vector-borne disease control departments.

8.127 *Vectors of filariasis.* Studies on the dynamics of filariasis transmission were carried out in Indonesia (Java), Samoa and the United Republic of Tanzania.

8.128 Large-scale field trials using larvicides for *Culex pipiens fatigans* control, supported by the Government of the Netherlands, were conducted by the WHO Vector and Rodent Control Research Unit in the Jakarta area. An organophosphorus insecticide (pirimiphos-methyl) and three insect growth regulators (diflubenzuron, methoprene and OMS 1390) gave satisfactory control for two to five weeks. These compounds could be considered for use in areas where fenthion and chlorpyrifos [2] cannot be used.

8.129 *Vectors of yellow fever and dengue haemorrhagic fever.* In southern Nigeria, the WHO Arbovirus Vector Research Unit continued to study the bionomics of yellow fever vectors. Dengue virus was isolated at the University of Ibadan from material provided by the Unit. *Aedes africanus*, usually considered a sylvatic vector, was found to be peridomestic in certain situations. Preliminary trials using hand-held ultra-low-volume equipment were initiated for the control of *Ae. aegypti* and *Ae. africanus*.

8.130 WHO-supported investigations undertaken in Bangui, Central African Empire, and Dakar, Senegal, on the longevity of *Ae. africanus*, *Ae. opok*, and one of the *Ae. taylori* group showed that these species may serve as yellow fever reservoirs as well as vectors in savanna areas.

8.131 The PAHO Advisory Committee on Yellow Fever, Dengue and *Ae. aegypti* met in Panama in March 1976 to study the Regional policy for the prevention of the disease transmitted by this vector.

8.132 *Vectors of onchocerciasis.* In cooperation with the WHO onchocerciasis control programme [3] and a collaborating laboratory on the Ivory Coast, 8 com-

[1] *WHO Chronicle*, 31 : 102 (1977).

[2] Proposed international common name.

[3] For details of this programme, see page 92.

pounds in 22 formulations were tested for *Simulium* control in small-scale river trials and 4 compounds in 5 formulations in large-scale trials, with special emphasis on the side effects on non-target organisms. Promising results in this search for environmentally acceptable larvicides were obtained with a micro-encapsulated formulation of an organophosphorus compound, chlorpyrifos-methyl.[1]

8.133 Chemical monitoring of insecticide residues following application was carried out for the onchocerciasis control programme during operational use of the larvicide temephos;[1] information was obtained on the movement of this larvicide in the river water and on its fate in non-target organisms and in the mud.

8.134 *Vectors of trypanosomiasis.* Within the framework of a joint UNDP/FAO/WHO project, and with the financial support of the Federal Republic of Germany and the technical assistance of a Netherlands institute, several insecticides applied by helicopter at low or ultra-low volume were evaluated against riverine tsetse flies in Upper Volta. Endosulfan and one pyrethroid were particularly effective and could be applied as aerosols for curbing outbreaks of sleeping sickness. The effects on the non-target organisms were minimal in most cases.

8.135 Studies on the vectors of Chagas' Disease carried out at the WHO Chagas' Disease Research Unit in Venezuela showed that reinfestation of insecticide-treated houses was relatively rapid, occurring within a few weeks when insecticides of short persistence were used. New insecticides that might be used to replace organochlorines as an adjunct to housing improvements were evaluated.

8.136 *Vectors of plague and murine typhus and rodent reservoirs.* Following the 1976 epidemic of African haemorrhagic fever in Sudan and Zaire, a search was made in Sudan for a possible rodent reservoir of the newly described Ebola virus; the collected material is being studied in the United Kingdom.[2]

8.137 In Nigeria, studies were carried out on rodents of the *Mastomys natalensis* group, the only proven reservoir of Lassa fever virus, to clarify the epidemiology of this disease. The different species of the *M. natalensis* complex are at present recognizable only by the number of chromosomes.

8.138 In Indonesia, the Vector and Rodent Control Research Unit began studying the ecology of potential reservoirs and vectors of plague in the Bogor-Ciloto area of Western Java; some investigations were also carried out in the city of Jakarta. Flea resistance to DDT was found to be widespread in these areas and control trials with alternative insecticides were commenced.

8.139 The WHO Rodent Control Demonstration Unit in Rangoon, Burma, supported by DANIDA and the United Kingdom through the Colombo plan, completed an 18-month study on the ecology, distribution and disease reservoir importance of the small-mammal population of Rangoon. Six species of rodents and one species of shrew were found to be present in the city in high densities. A significant percentage of animals trapped in surveys were seropositive for plague and murine typhus. Studies on rodent and flea control were pursued.

8.140 *Snail intermediate hosts.* WHO collaborating centres carried out a variety

[1] Proposed international common names.

[2] See also page 109.

of investigations on the screening of new molluscicides in Japan and the United Kingdom, on the biology and identification of snails in Denmark, and on the biological control of snails in Brazil and the United Kingdom. Close liaison was maintained with UNEP in developing environmentally sound snail control strategies.

Pesticide production, formulation and safe use

8.141 In collaboration with UNIDO, the Organization carried out a feasibility study for establishing a DDT plant in Viet Nam. WHO also participated in a symposium on pesticides organized by UNIDO in collaboration with ESCAP in Bangkok.

8.142 In a number of countries where malathion is now used for malaria control operations, the odour of currently available water-dispersible powders has created problems. An improved formulation of this insecticide was evaluated and found to be more acceptable.

8.143 In mid-1976 some malathion water-dispersible powders used in Pakistan and Iran caused outbreaks of poisoning. Intoxication occurred among several hundred spraymen who took little or no safety precautions, and five died. An investigation carried out by three WHO collaborating centres in Belgium, the United Kingdom and the USA in cooperation with manufacturers of malathion demonstrated that the poisoning resulted from potentiation of malathion by an impurity formed in the powder during shipping and field storage. A new set of malathion specifications, including specific analytical methods, that will prevent the procurement of such unstable water-dispersible powders was adopted by the WHO Expert Committee on Chemistry and Specifications of Insecticides which met in 1977.[1]

8.144 In collaboration with IARC, WHO extended the toxicological investigation of newly developed pesticides to include testing for possible mutagenicity and carcinogenicity potential.

Biological control

8.145 At the WHO Anopheles Control Research Unit, Kaduna, Nigeria, 28 pathogenic microorganisms associated with malaria vectors were isolated from *Anopheles gambiae and An. funestus.* Laboratory trials with several of these agents were encouraging, as they induced high larval mortality.

8.146 The first Scientific Working Group on Biological Control of Insect Vectors of Disease was held in 1977 as part of the Special Programme for Research and Training in Tropical Diseases. The Group reviewed the scheme for isolation and characterization of biological control agents, protocols for safety tests and the design of field trials.

8.147 A meeting was convened in Kaduna for investigations on the biological control of vectors in Nigeria.

8.148 The operational use of larvivorous fish was pursued in several countries in the Eastern Mediterranean area.

Vector genetics and genetic control

8.149 A feasibility study on the genetic control of *An. gambiae* was carried out in Senegal. Liaison was maintained with

[1] The report of the Expert Committee will be published in the WHO Technical Report Series during 1978.

USAID teams working on the genetic control of *An. albimanus* in El Salvador and *Glossina morsitans* in the United Republic of Tanzania, and a Franco-German team working on the genetic control of *G. p. gambiensis* in Upper Volta.

8.150 WHO convened an informal consultation on species complexes in insect vectors of disease. The report stressed the practical significance of complexes of closely related species of vectors and parasites in relation to the epidemiology of vector-borne diseases and the development of control methods.[1] Recommendations of the group are being implemented.

Equipment for pesticides

8.151 The WHO Expert Committee on Vector Biology and Control met in 1976 to consider engineering aspects of vector control operations.[2] In accordance with its recommendations, WHO collaborating centres are being established for the evaluation and testing of pesticide application equipment in cooperation with manufacturers and national programmes. The Committee also updated specifications for spraying equipment. WHO intensified its cooperation with FAO in the joint evaluation of equipment.

Vector control in international health

8.152 A WHO collaborating laboratory in Washington, DC (Agricultural Environmental Quality Institute, United States Department of Agriculture), carried out tests both in the laboratory and in operating aircraft on the efficacy of a new pyrethroid, (+)-phenothrin (*d*-phenothrin, S 2539 Forte), for the disinsection of aircraft. In 1977 the Thirtieth World Health Assembly approved the use of this compound for the disinsection of aircraft (resolution WHA30.19).

Special Programme for Research and Training in Tropical Diseases

8.153 The period 1976–77 saw the completion of the planning phase of the Special Programme for Research and Training in Tropical Diseases and the transition to a preparatory phase of organization and pilot activities leading to the full operation of projects. Detailed technical proposals for research and training were endorsed by a meeting in December 1976 of representatives of 35 participating governments, agencies and foundations representing both the affected tropical countries and the developed world. Administrative, financial and organizational plans were developed at the meeting, and it was agreed that the Programme was set on a sound technical foundation and that it should begin large-scale operations in 1977.

8.154 The Special Programme has two interdependent objectives: (*a*) to develop improved tools for the control of tropical diseases, and (*b*) to strengthen the relevant biomedical research capability in tropical countries. The Programme is based on an analysis carried out in consultation with numerous experts on (1) the six selected diseases (malaria, schistosomiasis, filariasis, trypanosomiasis, leprosy and leishmaniasis), current problems of their control and potential research approaches; (2) approaches to disease control that combine measures against several diseases—in the fields of epidemiology, biomedical research

[1] For species complexes in the Simuliidae, see *Bulletin of the World Health Organization*, **56**, No. 1 (1978).

[2] WHO Technical Report Series, No. 603, 1977.

and biological control of vectors ; (3) training and institution-strengthening ; (4) socioeconomic aspects ; and (5) programme management.

Research and development

8.155 Research in the Special Programme is planned, implemented and evaluated by scientific working groups comprising scientists selected on a worldwide basis according to their knowledge and skills. Scientific working groups are being established to cover all fields where research development is needed. By the end of 1977 scientific working groups had been established for the chemotherapy of malaria, the immunology of malaria, schistosomiasis, filariasis, African trypanosomiasis, the immunology of leprosy, the chemotherapy of leprosy, epidemiology, and the biological control of disease vectors. A scientific working group on biomedical research will be established in 1978.

8.156 In each case, a disease-oriented parent Scientific Working Group meets initially to provide an overview of the disease problems and is convened periodically to review the status of the programme. The parent group may later divide into target-oriented groups (for instance, on chemotherapy, immunology or operational research). The parent groups for filariasis, schistosomiasis, African trypanosomiasis, Chagas' diseases and leishmaniasis all met in 1977.

8.157 In addition, an Informal Working Group, meeting in Washington, DC, in March 1977, agreed on areas of high priority for socioeconomic research, including the sociocultural acceptance of technologies, and social, cultural and economic adaptations to disease.

Training and institution-strengthening

8.158 The emphasis on the strengthening of the research capability, initially on the African continent, is being extended to cover other endemic areas. Pilot activities were begun or will shortly begin, based on four centres in Ndola (Zambia), Nairobi (Kenya), Kuala Lumpur (Malaysia), and Cotonou (Benin). The first meeting of the Research Strengthening Group was held in October 1977. In addition, six workshops, symposia or seminars were conducted during 1977 for training scientists, and a number of research training grants were awarded.

8.159 An official agreement was signed between the Government of Zambia and WHO for the formal establishment of the Tropical Diseases Research Centre in Ndola, Zambia, which is the base for the first phase of the Special Programme's epidemiological studies, as well as for drug trials.

8.160 The Research Strengthening Group at its first meeting in Geneva in October 1977 established main policy guidelines covering this component of the Programme : (1) to strengthen research and training institutions, so as to assist tropical countries in developing the infrastructure necessary to cope with problems related to disease control ; (2) to support the training of persons from tropical countries, so as to develop scientists and other research personnel of the highest quality to help meet manpower needs ; (3) to encourage and assist in the diffusion, interpretation and integration of new knowledge so as favourably to influence health policies and their implementation ; and (4) to contribute to the rapid transfer to the affected countries of the knowledge, technology and skills that are relevant to their health objectives and within the sphere of the Special Programme.

8.161 The research-strengthening activities are by definition long-term commitments with explicit government involvement, in contrast to the scientific working group projects, which are limited in time and scope to a specific task. These activities will therefore be developed in close consultation with governments, regional Advisory Committees on Medical Research and other appropriate regional bodies.

8.162 Institutions strengthened by the Programme will be designated as centres within a network. Networks will be balanced on a regional basis to include as many as possible of the facilities for research and training that are required in the region.

8.163 Institution-strengthening is limited to centres in tropical countries. As much training as possible should take place in the tropical countries, making maximum use of Special Programme network centres. However, in some cases training in nontropical countries will be necessary.

Technical review

8.164 A Technical Review Group convened in September 1976 considered the technical and scientific aspects of the Programme, strongly endorsed the general development of the Programme and its objectives, examined and in general approved the balance of the various activities and recommended a number of adjustments in specific aspects of the Programme.

8.165 Major funds to support the Programme became available in 1977, and a second Technical Review Group convened in September 1977 felt that significant progress had already been made in moving the Programme into the phase of implementation. The Group reviewed the plans and pilot operations of the Special Programme, endorsed its objectives and proposed lines of development, and made certain modifications and recommendations for implementation, which were accepted by the Director-General. The Group stressed the need to continue to strengthen the management of the Programme by the incorporation of efficient and effective scientific and financial control systems; the importance of developing Special Programme activities in active consultation with the global and regional Advisory Committees on Medical Research, regional offices, and national and other bodies planning and funding research on the six diseases; and the importance of the Programme's training and institution-strengthening activities.

Financing

8.166 At the December 1976 meeting of cooperating parties a total of approximately US$ 7.5 million was pledged for activities in 1977 and a number of participants indicated their intention to provide long-term financial support. For the period 1 January to 30 September 1977, voluntary contributions totalling over US$ 6 300 000 were received to support the activities of the Special Programme, including contributions from the Governments of Cyprus, Denmark, the Netherlands, Norway, Sweden, the United Kingdom and the USA, and from UNDP (co-sponsor of the Programme), the International Leprosy Association, and the Japan Shipbuilding Industry Foundation (Sasakawa Health Fund). For the full year 1977, financial support from the regular budget of WHO totalled approximately US$ 903 000. These funds, plus additional pledges from the Governments of Austria, Belgium, Finland, Nigeria and Switzerland, and the International Development Research

Centre, brought the total financial support for the Special Programme to approximately US$ 11.5 million for 1977.

8.167 The parties cooperating in the Special Programme realize that 5-20 years of scientific and financial support will be required to attain its objectives, and some governments and agencies have already indicated 3-5-year support during the initial period of rapid implementation. Such longer-term support enables WHO to build up and maintain the participation and confidence of the scientific community and to begin strengthening research capabilities within the endemic countries.

Information transfer

8.168 The Special Programme Newsletter was distributed periodically to individuals and institutions in developing countries presently or potentially concerned with or interested in the areas of research within the Programme. Reports of scientific working groups were distributed to interested persons. Contact was made with relevant scientific and public health journals, and information displays were prepared for use at scientific meetings. A handbook was compiled for use by all persons involved in the research of the Special Programme, and invitations to submit research proposals were widely distributed.

Prevention of blindness

8.169 The technical cooperation programme for the prevention of blindness was established at the end of 1976 in accordance with World Health Assembly resolutions, and in particular resolution WHA28.54 adopted in 1975. However, specific activities began early in 1976.

8.170 The programme will deal initially with the most urgent priorities identified for WHO action—trachoma, xerophthalmia and onchocerciasis. Other recognized priorities are cataract, eye injuries and glaucoma. The long-term objective is to introduce adequate eye care and to promote eye health at the peripheral level, the main emphasis being on health education, intersectoral coordination of activities, promotion of national programmes and mobilization of extrabudgetary resources, in close collaboration with other organizations in this field, notably the International Agency for the Prevention of Blindness.

8.171 In 1976, "Foresight prevents blindness" was the theme for World Health Day. This activity, together with parallel action taken by the International Agency for the Prevention of Blindness, resulted in the setting up of national committees for the prevention of blindness in 47 countries. Information material was widely distributed in many languages and special events marked the day in a number of countries. Meetings held in New Delhi and Baghdad outlined strategies for blindness prevention and advocated the development of programmes in various countries. An example of interagency collaboration was the endorsement by the World Food Programme of a WHO recommendation for the enrichment of dry skimmed milk with vitamin A.[1]

8.172 In 1977, activities were especially aimed at further developing regional and national policies, programmes and projects. In Africa, as initial steps in the promotion of national programmes, surveys were carried out in Chad, Ghana and Nigeria and planned in other countries. Attention was given to the eye care component of the onchocerciasis control programme in the

[1] See page 55.

Volta River basin area ; experience gained there will benefit other countries affected by onchocerciasis. In the Americas, preliminary contacts were made to prepare a work plan for a regional prevention of blindness programme. Prevalence and morbidity studies of trachoma, xerophthalmia and onchocerciasis and pilot projects for glaucoma prevention and control were undertaken. Several countries in the Region explored the possibility of initiating comprehensive programmes.

8.173 In the South-East Asia Region, programmes were already well established for the prevention and treatment of xerophthalmia in Bangladesh and Indonesia and the control of trachoma in Burma. A further example of activities at the national level is the problem-oriented programme for the prevention and control of blindness planned by the Government of India, which includes the promotion of health education in eye care, the provision of comprehensive eye care through mobile units, and the establishment of a permanent infrastructure for eye health at different levels. Other activities included a survey of blindness, the management of eye injuries and glaucoma screening in Burma. Throughout the Region special attention was given to training and health education programmes and to mobilizing additional inputs from multilateral, bilateral and non-governmental organizations.

8.174 In the Eastern Mediterranean Region, WHO continued to cooperate in the control of trachoma and other communicable eye diseases in Iraq, Libyan Arab Jamahiriya, Oman, Sudan, Syrian Arab Republic and Yemen. In addition, a committee including some Ministers of Health from the Region was set up to study promotive measures for the prevention of blindness, including a feasibility study with regard to the setting up of a Regional centre.

8.175 In the Western Pacific Region, WHO cooperated in the formulation of a national programme in Fiji.

8.176 Data on blindness in a number of countries were collected in collaboration with the International Agency for the Prevention of Blindness and with the World Council for the Welfare of the Blind. Guidelines and visual aids for training personnel, especially auxiliary health workers, were being prepared, as well as guidelines for defining the methods used in field assessment.

Chapter 9

Noncommunicable Disease Prevention and Control

Mental health

Overall programme developments

9.1 A MEDIUM-TERM mental health programme for the period 1975–82 was developed in 1974–75 and initiated in 1975. It involves the use of a new mechanism: the Coordinating Group for the WHO Mental Health Programme. This broadly-based Group, which meets every two years, consists of WHO staff members and representatives from a wide range of disciplines concerned with mental health, including heads of WHO collaborating centres, representatives of United Nations agencies and governmental and nongovernmental organizations and public health administrators.

9.2 At its first meeting in 1976 the Group agreed on the content of the medium-term programme, the focal points for each activity, and methods for coordinating work so as to ensure that national, regional and global activities complement and strengthen each other. Shortly afterwards coordinating mechanisms at regional and national levels were established. In 1976 the WHO Regional Office for Europe convened its Advisory Committee on the European Mental Health Programme (1970–83) in Copenhagen, and the Regional Office for the Eastern Mediterranean Region held a Group Meeting on Mental Health in Cairo; in 1977 the Regional Office for South-East Asia held the first meeting of its Mental Health Advisory Group. Similar mechanisms are being developed in the Region of the Americas and the Western Pacific Region. In the African Region a workshop on Mental Health Services and Research Strategies in Africa, organized jointly by WHO and the African Psychiatric Association, reviewed priority mental health needs and strategies for meeting them; recommendations were forwarded to all governments in Africa. In response to resolution WHA30.45 adopted by the World Health Assembly in May 1977, requesting action to deal with the urgent problems arising from the severe psychosocial stresses facing populations of developing countries and particularly the high-risk populations in southern Africa, proposals for a mental health programme were developed jointly with appropriate governments and authorities and steps were taken to obtain the necessary extrabudgetary support.

9.3 At the national level various types of coordinating mechanisms evolved. For example, multidisciplinary resource centres were established in Colombia and India to coordinate work in those countries, assist the work of the regional coordinating group and cooperate with other countries

and WHO in developing appropriate mental health technologies and training programmes. In another country the main channel for cooperation with WHO is a specially formed liaison group consisting of public health officials, a representative of the national mental health professional association and other mental health experts. In yet another country collaboration with WHO is coordinated through the advisory board of an association of universities brought together by WHO's programme.

9.4 In August 1977 the second meeting of the Coordinating Group took place in Manila. Progress in the programme was evaluated in the context of Health Assembly resolutions adopted since the first meeting. In particular, discussion centred upon the development of effective cooperation among countries and with WHO in the integration of mental health into national health and social policies.

Development of community health services

9.5 WHO is cooperating with a number of developing countries in the effort to develop and test new approaches to mental health care, characterized by the use of simple interventions of proven efficacy, a highly selective approach to the definition of mental health priorities and the location of activities within the existing health services, in particular at the peripheral level.

9.6 By the end of 1977, the second phase of a collaborative study to establish the feasibility of this approach was well underway in communities in Colombia, India, Senegal and Sudan. Simple screening methods for mental disorders in both adults and children were developed in this study, and it was shown in all four countries that approximately 15% of all patients seeking health care at the primary level suffer from definite mental disorders, in many cases in combination with physical disorders. It was also shown that even brief exposure to mental health training has a strikingly beneficial effect on attitudes of health staff towards mental health, allows health workers to detect the majority of mental disorders, and leads to the provision of effective treatment at health centres. This work was facilitated by the definition of a limited range of "essential psychotropic drugs" sufficient for the effective management of neuropsychiatric disorders. Similar projects were initiated in Brazil and Philippines in 1977.

9.7 Development of appropriate mental health inputs into national health policies was the main line of action in all regions. Regional offices cooperated closely with countries, including in particular Gambia, Mauritius, Nigeria, Seychelles, Togo, Zambia (African Region); Colombia, Dominican Republic, El Salvador, Honduras, Jamaica, Peru, Uruguay, Venezuela (Region of the Americas); Bangladesh, India, Indonesia, Mongolia, Sri Lanka, Thailand (South-East Asia Region); Portugal (European Region); Ethiopia,[1] Iran, Iraq, Kuwait, Libyan Arab Jamahiriya, Oman, Saudi Arabia, Sudan, Syrian Arab Republic, United Arab Emirates (Eastern Mediterranean Region); Philippines, Republic of Korea (Western Pacific Region).

9.8 An important mechanism of cooperation with countries in the European Region was collaboration with national mental health service pilot areas in ten countries. Through the study of mental health services and their staffing, patient census and cohort studies, and cost-efficiency studies, it is hoped to develop and extend the range and quality of mental

[1] In May 1977 the World Health Assembly agreed to Ethiopia's request to be included in the African Region (resolution WHA30.35).

health services and to improve their co-ordination with general health care and with other social services.[1] Meetings were held to review constraints to development and make recommendations for comprehensive community mental health services in the light of the most recent trends in European countries.

9.9 Regional and interregional activities were undertaken to develop mental health services for specified population groups. A review of previous work in the field of mental retardation was carried out and a strategy for future action developed in which work on mental retardation is an integral part of several existing programmes —for example, mental health, maternal and child health, and disability prevention. Priority was given to action within existing services and to interventions concerned with children. Work was started on simple methods of detection for use by health staff providing care for young children and on simple methods for training parents of retarded children. The Thirtieth World Health Assembly endorsed this new strategy (resolution WHA30.38).

9.10 The WHO Regional Office for Europe, as the focal point for the Organization's programme on health care of the elderly, convened a working group on the prevention of mental disorders in the elderly. A review was undertaken of existing emergency mental admission units for the elderly.

9.11 In the area of child and adolescent mental health, information on mental health education programmes relating to the use and abuse of alcohol, tobacco and drugs was being collected in European countries with a view to assessing the short-term and long-term effects of such programmes. The role of youth advisory services and other community services in the prevention and early detection of mental problems in young people was the subject of a meeting held in 1977 and a comparative epidemiological study was undertaken to explore reasons for recent trends in suicide rates among young people in European countries.

9.12 Child and adolescent mental health was also an important concern in the Region of the Americas, as was indicated by the adoption in 1976 of Regional Committee resolution AMR/RC28/R33 on health and youth. Most countries in this Region were developing mental health programmes as an integral part of their family health programmes, with particular emphasis on activities at the community level.

9.13 A study group on the application of advances in neurosciences for the control of neurological disorders was convened in March 1977. Recommendations were made with regard to education of the community, and training of professional and non-professional workers; epidemiological research concerning neurological disorders and in particular epilepsy; and other research, for example, on the development of new drugs and vaccines, and on the relationship between neurological disorders and physiological and social factors in malnutrition.

9.14 Many countries are seeking a more effective legislative framework for mental health care. In 1975–76 the WHO Regional Office for the Eastern Mediterranean carried out a detailed study of mental health legislation in countries in that region, and in 1976–77 an international survey of mental health legislation was undertaken.[2] A

[1] May, A. R. *Mental health services in Europe.* Geneva, World Health Organization, 1976 (WHO Offset Publication No. 23).

[2] *International Digest of Health Legislation*, 28, No. 4 (1978).

new project begun in 1977 in the field of forensic psychiatry was concerned with the study of legal provisions for the assessment of dangerousness in the mentally ill.

9.15 In response to a request by the United Nations Special Committee Against *Apartheid*, a report was prepared based on the available published information concerning mental health care in the Republic of South Africa. The report stressed the existence of racial inequality and discriminatory practices within the mental health services of that country and concluded that such policies are the direct effect of *apartheid* in the health field.

9.16 Two projects concerned with alcohol consumption were launched in 1976 with extrabudgetary support. The first aims at ascertaining and commenting upon the response to problems created by alcohol consumption in communities in Mexico, the United Kingdom and Zambia. For the second project, on the prevention of alcohol-related disabilities, international reviews of the types and effectiveness of relevant measures, policies and programmes were prepared for discussion at a first meeting in October 1977, and a publication was prepared on the identification and classification of these disabilities.[1]

9.17 A report on WHO's approach and underlying policy in dealing with drug dependence problems was submitted to the twenty-seventh session of the United Nations Commission on Narcotic Drugs. The major emphasis of current work is on the development of effective management systems and treatment programmes, integrated into general health and social welfare efforts. Support from UNFDAC greatly facilitated WHO's collaboration with governments in this field. Focusing on developing countries, the approach involves the training of key personnel through fellowships, and epidemiological surveys in rural and urban target communities, followed by the introduction and systematic evaluation of treatment programmes. Projects using this approach were underway in Burma, Egypt, Iran, Pakistan and Thailand, and being planned in Afghanistan, Malaysia and Peru.

9.18 In response to resolution WPRO/RC27/R5 of the WHO Regional Committee for the Western Pacific, a working group on early intervention programmes in drug abuse was held in late 1976 and made recommendations for setting up such programmes. Cooperation was pursued with Malaysia in developing a national system for the treatment and rehabilitation of drug-dependent persons and with Viet Nam in establishing a comprehensive programme for drug dependence.

9.19 In October 1976 a meeting of experts was convened to advise WHO on its functions and responsibilities under the Convention on Psychotropic Substances. An Expert Committee on Drug Dependence met in late 1977 to review the instruments for scheduling drugs under the Convention and to consider necessary notifications.[2] Particular attention was paid to the development of new methods for assessing dependence-liability, abuse potential, therapeutic usefulness, and public health and social problems. All Member States were requested to provide information on their experience relative to Articles 3 and 10 of the Convention concerning combined substances and labelling of drugs. WHO designated two collaborating centres in the area of drug dependence ; four other

[1] Edwards, G., Gross, M., Keller, M., Moser, J. & Room, R. *Alcohol-related disabilities*. Geneva, World Health Organization, 1977 (WHO Offset Publication No. 32).

[2] WHO Technical Report Series, No. 618, 1978.

centres were in the process of designation. Extrabudgetary resources were obtained to support two intercountry workshops for decision-makers.

Psychosocial aspects of the human environment

9.20 In May 1976 the World Health Assembly adopted resolution WHA29.21, requesting the Director-General to initiate a programme in the area of psychosocial factors and their influence on health and the functioning of health services. In pursuance of this resolution three types of work were carried out.

9.21 First, a series of workshops was planned in which top-level health administrators from developing and developed countries, together with experts in the social sciences and related disciplines, would critically examine health programmes and identify needs for psychosocial inputs. The first of these workshops, in English, was held in late 1976, organized jointly with the Swedish Government and the WHO collaborating centre in Stockholm. The second, in French, organized jointly with the Belgian Government, takes place in January 1978.

9.22 Secondly, activities were undertaken to facilitate the application of existing knowledge in improving the provision of health and psychosocial care. Psychosocial development and mental health in childhood was reviewed by an Expert Committee in November 1976.[1] Interventions aiming to prevent adverse health and psychosocial effects of uprooting occurring as a result of rapid social change, migration and resettlement were reviewed and a bibliography prepared. A collaborative study in six countries on the prevention and reduction of social disabilities in people suffering from mental disorders was initiated, as well as a project aimed at assessing the adverse psychosocial effects of mass health campaigns such as fertility regulation programmes.

9.23 Thirdly, to obtain new knowledge in key areas of psychosocial functioning, a major cross-cultural study, supported by extrabudgetary resources and involving centres in nine developing countries, was begun in 1976. This study focuses on factors in family life protecting mental health and on the way in which stressful life events affect vulnerable individuals in different sociocultural settings. In this connexion a review was made of the available evidence on factors and interventions promoting healthy family functioning.

Health manpower development

9.24 A radical change of emphasis was introduced in regional and interregional training activities, which now focus on imparting mental health skills to a variety of health and social service personnel and on imparting public health skills to mental health workers. Details of mental health training and education activities are reported in chapter 7.

Promotion of biomedical and health practice research

9.25 The Organization developed a broad strategy for improving existing treatment methods, particularly in developing countries; comprehensive information on effective treatment methods and fundamental research is being made available to all Member States through a network of collaborating centres and publications.[2] A

[1] WHO Technical Report Series, No. 613, 1977.

[2] World Health Organization. *Advances in the drug therapy of mental illness.* Geneva, 1976.

WHO project designed to evaluate the differences in effectiveness of psychotropic substances that occur in different populations depending, for example, on climate, nutrition, endemic diseases, genetic polymorphism in drug metabolism or organ sensitivity was initiated, with extrabudgetary support, in seven countries. With the assistance of funds from UNFDAC, another study was begun in four countries on the abuse potential and usefulness in therapy of thebaine derivatives.

9.26 In an effort to increase understanding and cooperation in research on the biological basis of mental disorders, collaborative studies were carried out on the association between colour blindness and the presence of affective disorder, on the relationship between plasma amitriptyline level and therapeutic response in affective disorder, and on the antithymic immune factor in schizophrenia.

9.27 In view of the major public health importance of neurological disorders a series of studies was started on epilepsy, cerebrovascular disorders, and parasitic and infective disorders of the nervous system and on the pharmacokinetics of anticonvulsant drugs. This research is being carried out through the network of eight WHO collaborating centres.

9.28 Following the demonstration in a previous WHO study that important differences exist in the prognosis of severe mental disorders in developing and developed countries, a new study supported from extrabudgetary sources was undertaken in nine countries to identify possible differences in morbidity risks associated with such disorders in different cultures, and to explore the role of the family, the community and different biological factors in determining the course and outcome of severe mental illness.

9.29 Since patients with psychological disorders, and in particular various forms of depression, represent a sizeable proportion of all patients attending general health services, a study was initiated in five countries (Canada, India, Iran, Japan and Switzerland) to determine the frequency and types of such conditions and to develop methods for improving the capacity of nonspecialist health workers to deal with them.

9.30 Collaborative work on the epidemiology of drug abuse was continued, with support from UNFDAC. A case-reporting form for collecting "minimum essential" data on drug users in contact with treatment and other institutions was tested in seven countries and the results reviewed in late 1977. A general methodology for evaluating drug dependence treatment programmes was developed and the instruments and methods will be tested in evaluation studies in these same seven countries. Testing on students of a self-administered drug use survey instrument was begun in nine countries. Plans were made for the pilot testing of previously developed WHO guidelines for reporting available information on nonmedical drug use.

Mechanisms for programme development and support

9.31 In addition to the coordinative activities described above, methods of assessment and classification, and also information systems, were being developed to facilitate the identification of areas of immediate concern at the national level.

9.32 A trial of the multi-axial classification of psychiatric disorders in childhood [1] was initiated in several European

[1] Rutter, M., Schaffer, D. & Shepherd, M. *A multiaxial classification of child psychiatric disorders.* Geneva, World Health Organization, 1975.

countries in 1976. A consultation convened in Geneva in July 1976 reviewed the current state of casefinding and assessment methods in psychiatry and formulated proposals for a study of this topic, to be initiated in 1978. To facilitate collaboration in the prevention and treatment of cerebrovascular disorders, a draft outline of a classification and glossary of these disorders was prepared.

9.33 A project on monitoring mental health needs was launched in seven countries to develop and test methods for the creation, maintenance and evaluation of the mental health component of national health information systems. The WHO Regional Office for Europe assumed global responsibility for efforts in the area of comparative assessment of costs of mental health care. The project was implemented in a number of European countries and is now being extended to other parts of the world. Routinely collected national statistical information is used to identify a basic set of psychosocial and economic indicators describing countries' mental health problems and the resources available for their resolution. In another project, so far implemented in three countries, methods were being developed to make possible mental health projections on the basis of anticipated social, economic and demographic development of a country. A manual was drafted for use in the collection, processing, analysis and application of morbidity and health services statistics in mental health.

Cancer

9.34 After reviewing the Organization's long-term cancer programme, the Thirtieth World Health Assembly requested in May 1977 (resolution WHA30.41) that the programme be continued, including the development of health services, cancer control and research, the training of qualified oncologists, and the establishment of favourable conditions for exchange of experience on all aspects of the problem, at international and country level.

9.35 The Executive Board, in January 1977 (resolution EB59.R32), established an Ad Hoc Committee to make recommendations on all WHO's activities in the field of cancer, including those of IARC, and to base such recommendations on the Organization's medium-term programme on cancer, as described in the Sixth General Programme of Work. These recommendations should also cover the distribution of activities in the field of cancer research between WHO headquarters and IARC, as well as measures to ensure the best possible coordination of these activities. The report of the Ad Hoc Committee was presented to the Executive Board in January 1978.

9.36 A report on the importance and research potentialities of cancer chemotherapy for developing countries was submitted to the Advisory Committee on Medical Research for discussion. The report stressed that drug-sensitive tumours are more common in developing than in developed countries. Another significant conclusion concerned the numerous potentialities existing in developing countries, primarily related to the expertise gained from the use of natural products in traditional medicine. This expertise may provide a rational approach to the isolation of biologically active substances.

9.37 In connexion with assisting countries in the formulation of national policies on cancer control and research, a consultation of the Joint Working Group on Strengthening Cancer Control Activities at the Country Level was held in June 1977 in Geneva. The countries selected for

development of cancer control activities were Sri Lanka and Thailand (South-East Asia Region) and Iraq, Kuwait and Sudan (Eastern Mediterranean Region). A plan of action for 1978 was elaborated.

9.38 Advances in knowledge of cancer therapy can only come from trying new treatments, and clinical trials are generally acknowledged as being the most efficient mechanisms for this purpose. However, results of trials can be misinterpreted, and it may be difficult to incorporate the results into the practice of oncology. A meeting on standardization of the reporting of results of cancer treatment was therefore held in Italy in June 1977. Several standards and terms were formulated. Representatives of the International Union against Cancer and the European Organization for Research on Treatment of Cancer agreed that the recommendations of the WHO meeting could be readily adopted by their own organizations.

9.39 In 1976 standardization of hospital-based cancer registries was completed and an instruction manual published.[1] A system of hospital registration of cancer cases is being proposed that both developed and developing countries should find acceptable and practicable. Implementation of the WHO programme on standardized hospital-based cancer registries was begun in a number of countries including Italy, Kenya, Liberia, Pakistan, Poland, Uganda, United Republic of Cameroon and the USSR. The three main aims of standardization of hospital-based cancer registries are : (*a*) to provide more reliable data for population-based registries, (*b*) to serve as a base-line for collaborative studies between institutions, and (*c*) to evaluate cancer health services in particular areas.

9.40 In continuation of the comprehensive programme on the International Histological Classification of Tumours, WHO published classifications in 1976–77 of haematopoietic and lymphoid tissues,[2] intestinal tumours,[3] testis tumours,[4] and gastric and oesophageal tumours.[5] Revisions and updating were started on the first classification of lung cancer, published in 1967.

9.41 Further work was undertaken on the definition of precancerous lesions of various sites ; these efforts are directed towards early detection.

9.42 Guidelines on the definition, nomenclature and classification of cirrhosis, hepatic fibrosis, and chronic hepatitis and their relation to cancer were published in 1977.[6]

9.43 The programme of standardization of the cytological terminology in cancer was finalized in 1977 by the publication on the cytology of non-gynaecological sites.[7] Thus comprehensive classifications are now available covering the entire field of cytological diagnosis of cancer.

[1] World Health Organization. *WHO handbook for standardized cancer registries (hospital-based)*. Geneva, 1976 (WHO Offset Publication No. 25).

[2] Mathé, G., Rappaport, H., O'Conor, G. T. & Torloni, H. *Histological and cytological typing of neoplastic diseases of haematopoietic and lymphoid tissues.* Geneva, World Health Organization, 1976 (International Histological Classification of Tumours, No. 14).

[3] Morson, B. C. & Sobin, L. H. *Histological typing of intestinal tumours.* Geneva, World Health Organization, 1976 (International Histological Classification of Tumours, No. 15).

[4] Mostofi, F. K. & Sobin, L. H. *Histological typing of testis tumours.* Geneva, World Health Organization, 1977 (International Histological Classification of Tumours, No. 16).

[5] Oota, K. & Sobin, L. H. *Histological typing of gastric and oesophageal tumours.* Geneva, World Health Organization, 1977 (International Histological Classification of Tumours, No. 18).

[6] *Bulletin of the World Health Organization*, 55 : 521 (1977).

[7] Riotton, G., Christopherson, W. M. & Lunt, R. *Cytology of non-gynaecological sites.* Geneva, World Health Organization, 1977 (International Histological Classification of Tumours, No. 17).

9.44 WHO collaborating centres for the evaluation of methods of diagnosis and treatment of melanoma, stomach and ovarian cancers continued their activities: reappraisal of the different aspects of the problems, clinical trials, registration, and abstracting of current literature. New collaborating centres were established for cervical cancer (Sofia, Bulgaria), bladder and prostate cancers (Stockholm, Sweden), lung (Miami, USA) and colon (Glasgow, United Kingdom).

9.45 The principal interest of WHO in the field of biology of cancer lies in the practical application of some of the results of basic research. In connexion with this aim, meetings were held in 1976 on the immunotherapy of solid tumours, in Vienna, and on the biological behaviour of tumours and chronobiological aspects of treatment, in Oslo. An international symposium on cell proliferation and differentiation in normal and neoplastic systems was held in October 1977, in Essen, Federal Republic of Germany.

9.46 In order to review and coordinate WHO's activities in the field of cancer, interregional meetings were held in Washington, DC, in 1976 and Tunisia in 1977. Particular attention was paid to the potential of existing informational systems on cancer, community approaches and screening techniques.

9.47 The Expert Committee on Chemotherapy of Solid Tumours met in November 1976 and elaborated guidelines on this major modality for the treatment of common cancers. Among the subjects discussed were basic concepts in cancer therapy, approaches to specific tumours, drug development and clinical trial strategies, and international cooperation.[1]

[1] WHO Technical Report Series, No. 605, 1977.

9.48 In the Region of the Americas, Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico, Peru, Uruguay and Venezuela are participating in a system for providing information on existing research and resources in cancer, in order to identify programme areas, priorities and cooperative projects. This programme, in which the PAHO/WHO Regional Library of Medicine and the Health Sciences and the National Cancer Institute, USA, are participating, is in line with the recommendation of the XXIIIrd Meeting of the Directing Council of PAHO and with the recommendations contained in resolutions of the World Health Assembly (WHA26.61, WHA27.63, and WHA28.85) on long-term planning of international cooperation in cancer research.

9.49 In the South-East Asia Region, WHO provided consultancy services in the formulation of national cancer control plans in Bangladesh, India, Indonesia and Sri Lanka.

9.50 The European Regional Office sponsored a working group on child cancer control in Prague in 1977. This group reviewed the efficacy of treatment and management methods, the possible role of environmental factors, the consequences of treatment, and options as regards rehabilitation. Other matters considered included genetic, physical and chemical prevention approaches, including screening, as well as the structure of cancer control services and the training of personnel manning them. The results of the working group were used for the later conference on comprehensive cancer control mentioned below and are to be incorporated in a proposed study on child cancer. The Region's conference on comprehensive cancer control was held in Copenhagen in July 1977; its deliberations will be of great importance in planning future activities in the Region

in the field of cancer, particularly with reference to the possible creation of a medium-term programme.

9.51 In the Eastern Mediterranean Region, WHO seminars on bone tumours and female genital tract tumours were held in Pakistan, and a Regional seminar on the international histological classification of tumours was held in Iraq. The Organization collaborated in the First Middle East Cancer Conference held in Cairo in 1977. Regional centres continued their work on bladder cancer and cancer of the head and neck (in Egypt), oesophageal cancer and lymphoma (in Iran), and breast and uterine cancer (in Tunisia). A Regional Advisory Panel on Cancer was constituted and a cancer programme for the Region was defined.

9.52 In the Western Pacific Region, WHO co-sponsored the Third Asian Cancer Congress in 1977.

International Agency for Research on Cancer [1]

9.53 IARC's programme utilizes recent advances in fundamental research and new techniques in the study of human cancer, and includes research into the extrapolation to man of carcinogenic risks as determined in animal experiments, field studies on putative oncogenic viruses, and the standardization of methods for measuring environmental carcinogens.

9.54 In view of the worldwide shortage of personnel competent in cancer epidemiology and environmental oncology, who are necessary for the effective direction of preventive measures at the national level, fellowships were awarded for research training, and specialized courses aimed at primary prevention were organized both in Lyon and in the regions, with particular emphasis on environmental carcinogenesis.

9.55 The Research Centres in Nairobi, Singapore and Teheran were actively involved in the programme, and up to the end of 1977 more than 70 research agreements were in operation with national laboratories in 28 countries.

Cancer registries

9.56 Volume 3 of *Cancer Incidence in Five Continents*,[2] containing computerized and standardized morbidity data on 80 populations, was published, and a start was made on annotating and comparing the data contained in this and the two earlier volumes.

9.57 The Agency, together with WHO headquarters, continued to collaborate with the International Association of Cancer Registries in preparing a monograph on the purposes and techniques of cancer registration, which is intended to improve the international comparability of registry data.

9.58 Collaboration was also continued with the cancer registry in Dakar and advice was given on improving the recording system for cancer data in the Mustapha Hospital, Algiers. The cancer registry linked with the Research Centre in Singapore maintained its highly efficient performance and, under the direction of the Research Centre in Teheran, the cancer

[1] For more detailed descriptions of IARC's activities, see International Agency for Research on Cancer, *Annual Report, 1976*, Lyon, 1976; *Annual Report, 1977*, Lyon, 1977.

[2] Muir, C. S., Waterhouse, J. A. H., Correa, P. & Powell, J. *Cancer Incidence in Five Continents, vol. 3*, Lyon, 1976, International Agency for Research on Cancer (IARC Scientific Publications, No. 15).

registry in Babol, which is linked with the cancer study on the Caspian littoral, now covers almost the entire population in the area.

9.59 The clearing-house for on-going research in cancer epidemiology published its second annual directory and has accumulated a total of 908 entries for 71 countries.[1]

Carcinogens

9.60 In an effort to coordinate carcinogenicity testing at the international level, the Agency continued its survey of laboratories carrying out tests and of the substances that they are testing. The reports of chemicals being tested are cross-checked with studies reported in the Directory of On-going Research in Cancer Epidemiology in order to identify the gaps that need to be filled by further research. Work continued to bring the carcinogenicity survey up to date.

9.61 The working groups convened by the Agency continued their evaluation of published data on chemicals for which there is evidence of human exposure and six volumes of the monographs on the evaluation of carcinogenic risk of chemicals to man, covering 116 chemicals, were completed during 1976-77.

9.62 In collaboration with WHO headquarters, IARC contributed to WHO's programme on screening for adverse biological effects by carrying out assays of mutagenicity on several pesticides and on an antischistosomal drug.

9.63 New technology was used for the detection and measurement of volatile nitrosamines in beverages and foods collected in the oesophageal cancer studies in France and Iran. A technique was developed and standardized that may provide an indirect measure of potential nitrosamine exposure. Nitrite determinations in saliva were carried out in the oesophageal cancer study area in Iran.

9.64 The Agency supported a collaborative study on the biological effects of exposure to asbestos and participated in an epidemiological study on the possible carcinogenic hazards in the mineral fibres industry.

9.65 A meeting was organized of scientists involved in research on carcinogenesis, epidemiologists, public and environmental health officials and jurists to discuss carcinogenic risks and strategies for intervention, with the aim of establishing objective guidelines for rational decision-making where there is a carcinogenic hazard.

Role of viruses in cancer

9.66 The study in Uganda of the possible role of Epstein-Barr virus in the etiology of Burkitt's lymphoma was continued. In addition, advantage was taken of a governmental malaria suppression trial in the United Republic of Tanzania, in collaboration with WHO headquarters, to observe whether the incidence of Burkitt's lymphoma will also decline, in order to test the hypothesis that malaria plays a role in promoting Burkitt's lymphoma.

9.67 An international symposium on the etiology and control of nasopharyngeal carcinoma was organized in Kyoto, Japan, in April 1977. The study of nasopharyngeal carcinoma continued and in the WHO Immunology Research and Training Centre, Singapore, an immunogenetic profile specific for nasopharyngeal carcinoma was identified and interpreted as a risk marker

[1] Muir, C. S., Wagner, G. & Davis, W. *Directory of on-going research in cancer epidemiology*, Lyon, International Agency for Research on Cancer, 1977 (IARC Scientific Publications, No. 17).

or indicator of the prognosis in patients with that condition.

9.68 Evidence is accumulating that hepatitis B virus is involved in the etiology of liver cancer and prospective studies were initiated. The relationship between viral infection and exposure to environmental chemicals—mycotoxins—has yet to be elucidated, but it is hoped that these studies will lead to the possibility of prevention.

Respiratory cancer

9.69 The effects of different types of tobacco and alcohol consumption on the incidence of a variety of forms of cancer were studied. The smoking and drinking habits of a rural population in northern Thailand were shown to be associated with an increased risk of cancer of the larynx or lung that varies according to the acidity or alkalinity of the smoke from different types of local cigars. The study of lung cancer among Singapore Chinese women was continued; the high rates found in this population are apparently not related to smoking. A case-control study was begun in collaboration with the National Institute of Oncology, Havana, to determine the causes of lung cancer mortality in Cuban women.

Oesophageal cancer

9.70 In Iran, the association of oesophageal cancer with poor socioeconomic status of long duration was confirmed. Food samples taken in the high and low incidence areas were analysed for volatile N-nitroso compounds, polycyclic aromatic hydrocarbons and aflatoxins, but no significant differences were found. Wheat samples from the high incidence area were examined for contaminants, in particular fungi and their associated toxins, and extraneous seeds, but here too no significant contaminants were found.

9.71 Also in Iran, the possible implication of opium smoking in the causation of oesophageal cancer was investigated. Opium samples and the dottle scraped from opium smokers' pipes were found to be mutagenic. The opium dottle is apparently eaten, and even administered to young children as a medicine.

9.72 The high incidence and distribution of oesophageal cancer in Ille-et-Vilaine, France can be convincingly explained in terms of the level of consumption of alcoholic beverages and tobacco. A nutritional study comparing the dietary intake of some 200 oesophageal cancer patients with that of nearly 800 controls revealed no important differences. In a search for the carcinogen involved, samples of apple brandy were tested for mutagenicity; a small number of fractions showed mutagenic activity that was not correlated with nitrosamine concentration.

Alcohol consumption and cancer

9.73 The causes of death of a cohort of Danish brewery workers were being followed and compared with the general male population; by the end of 1977, over 3000 deaths had been recorded in the cohort. No significant difference was found between observed and expected numbers of deaths from cancers of the colon and of the rectum, but a significant excess risk in the cohort was observed for cancer of the oesophagus and pharynx. Observed mortality from liver cirrhosis, gastroduodenal ulcer, and motor vehicle accidents was higher than expected.

IARC's role in non-participating states

9.74 Although the details of the cancer problem vary from country to country, the

results of research in industrialized states may be relevant to non-industrialized states—and *vice versa*. The Agency participates in the transfer of knowledge among countries by ensuring that in the execution of its programmes there is full involvement of local scientists and laboratories, as well as a build-up of local scientific expertise; this has been the case, for example, in Iran and Uganda.

9.75 The Agency's epidemiological studies have direct relevance for public health authorities in developing countries, enabling them to

— evaluate the importance of local cancer problems relative to other diseases
— identify tumours of exceptional local importance
— ascertain the absolute number of cancer cases and the consequent demands on health services
— determine the relative importance of cancers associated with particular life-styles, and the feasibility of their primary prevention.

Cardiovascular diseases

9.76 Prevention and control at community level are the ultimate objectives of the long-term programme on cardiovascular diseases, formulated in response to World Health Assembly resolution WHA29.49 of May 1976. This programme is being increasingly oriented towards the developing world.

9.77 A major milestone was the establishment of pilot programmes for the comprehensive prevention and control of cardiovascular diseases relevant to the communities under study. If comprehensive programmes prove to be feasible and effective, they will be extended and, ultimately, integrated with other chronic disease control programmes.

9.78 Rheumatic heart disease is the major cardiovascular problem of public health importance in many developing countries. A multicentre project using a community approach to the prevention of rheumatic heart disease is in progress in four regions (Africa, the Americas, South-East Asia, Eastern Mediterranean). This approach is based on the identification of subjects with rheumatic fever and rheumatic heart disease, especially among schoolchildren. Prevention of recurrences is then ensured by means of the regular administration of prophylactic measures against streptococcal reinfections, including regular injections of benzathine penicillin. An expansion of the programme took place in 1976–77 with the involvement of 7 centres in Latin American countries and in the Philippines. There are now 15 centres collaborating in this area. A consultation in September 1977 identified research priorities and recent advances requiring implementation in the control of rheumatic heart disease.

9.79 The project on the community control of hypertension, which started in 1972, now includes 18 communities in various parts of the developed and developing world and covers all WHO regions. Approximately 30 000 hypertensive subjects had been registered up to the end of 1977; they will be followed up and treated as necessary. An interim analysis of the data obtained was carried out at the annual meetings of investigators in 1976 and 1977. The project was planned for a period of five years, and in 1977 evaluation of the project was begun. The expected long-term effects are a decrease in the prevalence of hypertension, in the incidence of stroke and other complications of hypertension and, possibly, in the incidence of ischaemic heart

disease. The results will be published in 1980.

9.80 The double-blind randomized trial to determine whether the incidence of ischaemic heart disease can be reduced by lowering high blood lipid levels in 15 000 healthy men by using the drug clofibrate was completed in 1977. The results of this ten-year trial, which was conducted in four centres in European countries, provide information on both positive and negative aspects of using hypolipidaemic drugs in the prevention of ischaemic heart disease. A report on the trial is in preparation.

9.81 A consultation was held in October 1977 on the prevention of atherosclerosis in childhood and adolescence. At present five collaborating centres are involved. WHO is promoting investigations in this field and acts as a clearing-house of information obtained, with a view to facilitating the prevention of ischaemic heart disease in developing countries which are still free of this health problem.

9.82 The results of a collaborative project begun in the 1960s on atherosclerosis of the aorta and coronary arteries in five towns in Czechoslovakia, Sweden and the USSR (3) were published,[1] providing information on autopsy findings in 17 287 subjects over the age of 10 years in five demographically defined populations ; some form of atherosclerotic lesion was present in nearly all cases.

9.83 In collaboration with the International Society and Federation of Cardiology (ISFC), work was carried out in 1976–77 on preparing internationally acceptable nomenclatures in different areas of cardiovascular disease. Several joint WHO/ISFC meetings of the Task Force on Classification of Arrhythmias were held. The Task Force on Nomenclature of Ischaemic Heart Disease also finalized its report. A WHO/ISFC Task Force on Cardiomyopathies was established to review the classification and nomenclature in this area.

9.84 An international study on normal values in pulmonary circulation was completed, haemodynamic data having been obtained by catheterization from more than 600 persons free from cardiovascular diseases. Recommendations were made on ranges of findings that can be accepted as normal and on methods to be applied in haemodynamic examinations of the pulmonary circulation.

9.85 The trace element research project is carried out in collaboration with IAEA to find out whether trace element imbalances play a role in the etiology and pathogenesis of myocardial infarction, and whether arterial hypertension is causally related to such factors as the accumulation of the pollutant cadmium in kidneys. Some results of the project were evaluated at an IAEA/WHO consultation in September 1977. Higher zinc and lower copper concentrations were found in blood and tissues of cardiac patients than in controls. Whether these changes are causally related to myocardial infarction is not yet known. No support was found for the hypothesis that higher kidney cadmium by itself is related to hypertension, but an excess of cadmium together with a deficit in zinc seems likely to be related.

9.86 Many studies have shown that mortality from cardiovascular diseases is higher in areas served by soft demineralized water than in those served by hard water. The nature and biomedical significance of this statistical association are still unknown,

[1] *Bulletin of the World Health Organization*, 53: 485 (1976).

and internationally coordinated studies are being carried out in an attempt to identify the factors in water that may influence cardiovascular health. Under the coordination of a WHO Collaborating Centre for Reference on Studies of Cardiovascular Diseases in Relation to Drinking-Water Quality, located in Ottawa, institutions in Canada, Finland, Hungary, Italy, the United Kingdom and Yugoslavia are collecting and analysing drinking-water in areas where there is good information on cardiovascular diseases. In addition, information on water composition was collected in the WHO network of myocardial infarction registers in Europe. Results consistently show the presence of higher myocardial infarction rates in soft water areas.

9.87 The coordination of activities on smoking and health on a worldwide basis was further developed during 1976–77, in particular following the adoption by the World Health Assembly in 1976 of resolution WHA29.55. In collaboration with other agencies within the United Nations system and with nongovernmental and other organizations, WHO was active in such areas as antismoking legislation, antismoking education, and disseminating information on the harmful effects of smoking. A WHO Expert Advisory Panel on Smoking and Health was established, and plans were made for the Expert Committee on Smoking Control to meet in 1978. Work also proceeded on establishing a network of WHO collaborating centres on smoking and health.

9.88 To strengthen the role of the WHO Regional Office for Africa and enable more flexible utilization of the available expertise in this Region, an interregional team stationed in Accra, Ghana, was transferred in January 1977 to the supervision of the Regional Office in Brazzaville. Epidemiological studies carried out by the team among schoolchildren and adults provided information on the prevalence and incidence of different cardiovascular diseases among the populations studied. New projects on the prevention of rheumatic fever and rheumatic heart disease and control of hypertension were started in pilot areas in Abidjan, Ivory Coast and in Dakar, Senegal.

9.89 In countries of South and Central America the WHO Regional Office for the Americas supported projects on the prevention of rheumatic fever and rheumatic heart disease in seven pilot areas and on the control of hypertension in nine areas.

9.90 The main problems in the South-East Asia Region in the field of cardiovascular diseases are rheumatic fever, hypertension, ischaemic heart disease and congenital heart diseases. In several areas where the basic epidemiological information and resources and organization are available, projects on the prevention of rheumatic fever and rheumatic heart disease and the control of hypertension and stroke were continued on a pilot basis. The areas concerned also provide data on the geographical distribution of cardiovascular diseases and on experience in the organization of preventive and control programmes in cardiovascular and other noncommunicable diseases.

9.91 During the biennium the long-term programme on cardiovascular diseases of the European Region concentrated upon establishing pilot areas for the comprehensive community control of cardiovascular diseases. Methodologies for intervention and evaluation were developed at working groups on this topic, held in Koli, Finland, in 1976 and in Geneva in 1977.

9.92 Environmental and life-style factors are important in the development of chronic diseases in general and cardiovascular diseases in particular, but there are good prospects that their effects can be modified. This approach is reflected in the European collaborative multifactor preventive trial, and in the North Karelia project in Finland, and was discussed during the Commission for European Communities/WHO Workshop on the Role of Physical Activity in Prevention of Cardiovascular Diseases, held in Luxembourg in 1977.

9.93 With the aim of helping governments to evaluate the impact of the coronary bypass surgery, the demand for which has increased substantially in Europe during recent years, the WHO Regional Office for Europe held a meeting jointly with the Netherlands Government in The Hague in 1977 on this subject.

9.94 Pilot programmes for preventive activities specifically directed at rheumatic fever and rheumatic heart disease were established in three countries of the Eastern Mediterranean Region (Cyprus, Egypt and Iran).

9.95 Control of hypertension and prevention of rheumatic fever and rheumatic heart disease are priorities of the long-term cardiovascular disease programme in the Western Pacific Region. A Cardiovascular Disease Task Force was established and attached to the Regional Advisory Committee on Medical Research. A systematic training programme for WHO fellows in epidemiology and methods of prevention of cardiovascular diseases was prepared. The establishment of a regional training and research centre in the field of cardiovascular diseases was initiated in collaboration with the governments of several Member States in the Region.

Other chronic noncommunicable diseases

9.96 The main task of the programmes on other chronic noncommunicable diseases is to achieve uniformity of terminology used, to elaborate classification and agreed diagnostic criteria, and to develop and coordinate training and control programmes through the network of collaborating centres and countries involved.

9.97 The WHO programme on *diabetes mellitus* and its vascular complications was extended, and information on approximately 5000 patients in 11 countries was discussed at the WHO Meeting of Investigators on the Multinational Study of Vascular Disease in Diabetics, held in Geneva in October 1977 ; special attention was given to the frequency of large-vessel and small-vessel diseases in the diabetic population investigated during the study.

9.98 Since the main cause of death in the diabetic population is often associated with large-vessel disease, the pathogenesis of this condition was investigated in relation to various environmental risk factors involved. Small-vessel disease in the diabetic population is another socio-medical problem and is responsible for much morbidity and invalidity ; preventive measures against the development of such complications were considered and discussed and will be reported upon later.

9.99 WHO, in close collaboration with the International Diabetes Federation, established an organizing committee during 1977 for a postgraduate course on diabetes mellitus and elaborated a preliminary programme for the course, which will take place in 1978.

9.100 A group of experts met in Geneva in July 1976 to discuss the formulation of

a definition and classification of *chronic lung diseases*. The proposals were distributed to various pathologists around the world for consideration and comments. A preliminary programme and plan for the epidemiological investigation of chronic lung diseases in various population groups in 1978 was drawn up.

9.101 A Working Group on Intensive Care for Respiratory Insufficiency was held in 1976 in the European Regional Office, which led to a multinational study on patients suffering from respiratory insufficiency, with the support of the Research Unit for Respiratory Physiopathology, Institut National de la Santé et de la Recherche médicale, Nancy, France.

9.102 A progress report on *rheumatic diseases* was submitted in 1976 to the World Health Assembly, which adopted resolution WHA29.66, aimed at promoting national and international efforts in the prevention and control of rheumatic diseases.

9.103 A WHO collaborating centre was designated in Mainz, Federal Republic of Germany, in 1976 for the development of a standardized methodology for the histopathological definition and classification of rheumatoid arthritis and allied diseases.

9.104 With a view to supporting the initiative of the International League against Rheumatism to make 1977 World Rheumatism Year, WHO published a special issue of *World Health* (June 1977), which included reviews of some aspects of rheumatic diseases by leading specialists in this field. Also in connexion with World Rheumatism Year, WHO sponsored and supported an advanced course on investigative rheumatology in London in 1977.

9.105 The European League against Rheumatism, sponsored by the European Regional Office, organized a Workshop on Chronic Rheumatic Diseases in Childhood in March 1977.

9.106 The WHO Meeting of Investigators on Chronic Liver Diseases in November 1977 considered various epidemiological aspects of *chronic liver diseases* in an attempt to define what should be the main area of future investigations in different population groups.

Oral health

9.107 The oral disease problems facing health administrators in nearly all countries are as follows. First, a very high proportion of the population is affected by one or both of the two main oral diseases. Secondly, one of the diseases, caries, if left untreated, causes intense pain and creates an insistent demand for immediate services; both caries and periodontal disease lead to loss of teeth and subsequent demand for prosthetic services. Thirdly, in no country are adequate oral health care services available to the entire population.

9.108 Information available in the WHO global oral data bank indicates that a rapid increase in dental caries is now occurring in developing countries. In response to this trend, a new programme of prevention of oral diseases, financed almost entirely by extrabudgetary funds, was launched in January 1976 in accordance with resolution WHA28.64 adopted by the World Health Assembly in 1975. The complementary and supporting programmes that have both direct technical cooperation and methods development and testing components are manpower and services development, global epidemiology, and research.

9.109 The main activity in the prevention programme is the provision of direct technical cooperation in the field of planning and implementing preventive programmes as integral parts of oral health services. Technical cooperation was established with 24 countries in 4 WHO regions, as part of the prevention and manpower and services development programmes.

9.110 Subsidiary activities included the coordination of research in the development and application of new preventive agents, and field demonstration projects in Thailand and French Polynesia to test and evaluate the effectiveness of various preventive methods and at the same time provide oral disease prevention for up to 20 000 children for 3 years.

9.111 As part of the manpower and services development programme, a comprehensive manual was completed giving guidance to administrators on choosing dental equipment and materials suitable for different service and staffing situations. It was circulated to 50 dental equipment manufacturers in order to promote the production of robust, easily maintained equipment for all environments. The *World Directory of Schools for Dental Auxiliaries*, giving details of courses, entry qualifications and numbers of places available, was published.[1] In the European Region a study on the training and use of dental auxiliary personnel was completed, and detailed information was collected on the patterns of organization of dental health services in 28 countries.

9.112 In the epidemiology programme, the standard methods for assessing and monitoring oral diseases in populations were updated. A second edition of the manual on oral health surveys was published; it includes a section on the assessment of specific treatment needs as an aid to more precise manpower planning.[2] In cooperation with the International Dental Federation, further development and field testing were carried out of new methods for detecting oral cancer and assessing dentofacial anomalies and periodontal diseases. Twenty-two countries requested technical cooperation in the planning of epidemiological surveys and in the analyses of data collected, and 16 data sets were analysed by WHO.

9.113 The research programme included a project on the basic etiology of caries and a project on health care services delivery. A further stage was completed in the study of caries etiology in Papua New Guinea. Major findings, some of which have been confirmed in a highly industrialized community, include the identification of lithium as a factor in the etiology of caries; its exact role has yet to be clarified.[3] The other research project included the development of a comprehensive methodology for the assessment and evaluation of oral care delivery systems. This procedure was successfully applied in six countries—Australia, Federal Republic of Germany, Japan, New Zealand, Norway and Poland. Results clearly indicate the desirability and feasibility of oral disease preventive programmes; in one country one of the highest caries levels was reduced by one-third over 10-15 years. The project is supported by the United States Public Health Service and by the participating countries. The results provide, for the

[1] World Health Organization. *World directory of schools for dental auxiliaries, 1973*. Geneva, 1977.

[2] World Health Organization. *Oral health surveys, basic methods*, 2nd ed. Geneva, 1977.

[3] Schamschula, R. G. et al. *WHO study of dental caries etiology in Papua New Guinea*. Geneva, World Health Organization, 1978 (WHO Offset Publication No. 40).

first time, a valid basis for planning new oral care services and improving existing services.

Radiation medicine

9.114 The radiation medicine programme in 1976–77 was aimed at the promotion, improvement and optimization of radiation medicine services in the context of national health service programmes, with special emphasis on basic radiological services in developing countries.

Radiodiagnosis

9.115 Country health planning in this field is mostly inadequate. The requirements of diagnostic radiological services vary considerably with the clinical pattern and level of health care. It is therefore essential to assess the value of diagnostic radiology in the perspective of the whole process of the investigation, diagnosis, prevention and treatment of communicable and noncommunicable diseases. To this end, a project was started jointly with the International Society of Radiology in 1976 on the efficacy of radiodiagnosis and cost-benefit relations with respect to planning health services. A first consultation with the Society was held in Montreux, Switzerland, in 1976 which produced a plan of operation to obtain updated information on existing radiological services. Following this consultation, pilot studies were started in Kenya, in collaboration with the Ministry of Health, and in the United Kingdom. A group of investigators met in Brussels, with the support of the Belgian Government, in November 1977 to evaluate the data so far obtained from the pilot studies. Conclusions and recommendations were obtained on how to organize relevant, internationally coordinated studies, and a detailed plan of operation for the project was agreed upon.

Radiotherapy

9.116 The ever-increasing importance of cancer in the developing world necessitates the establishment of appropriate radiotherapy services in the context of cancer control programmes. When such services are being planned, it must be borne in mind that they may take 5–10 years to become fully operational; the needs of cancer control in ten years' time must therefore be considered during the planning stage. In order to investigate the present stage of development of radiotherapy throughout the world, to define the needs in relation to the stage of development of health care and to provide the basis for health planning, information is collected in a similar way as for radiodiagnosis, in collaboration with the International Society of Radiology and radiotherapy centres.

9.117 An atlas of typical treatment plans for cobalt-60 teletherapy, prepared by WHO jointly with IAEA, was finalized in 1977 and will be published in the IAEA series of atlases on dose distributions. Designed mainly for radiotherapists in developing countries who do not have easy access to literature, the atlas contains examples of treatment strategies and individual treatment plans for over 20 of the most common cancer sites, and includes contributions from more than 30 radiotherapy centres throughout the world.

9.118 One of the prerequisites for successful radiotherapy is the application of the correct dose to the tumour. In order to improve clinical dosimetry, the IAEA/WHO postal dose intercomparison service was continued in 1976–77. Small thermoluminescent dosimeters are mailed to radiotherapy institutes in all WHO regions,

where they are irradiated with a prescribed dose and returned for measurement. Advice on how to improve dosimetry is then given to the centres where this is necessary. A total of 140 centres in 5 WHO regions participated in the service in 1976, and 170 centres in all 6 regions took part in the programme in 1977. Another approach to the improvement of dosimetry was made by the establishment, in 1976, of the joint IAEA/WHO network of secondary standard dosimetry laboratories, with the aim of providing regular calibration of dosimetric equipment in countries without primary standard laboratories and providing training in medical physics and radiation protection. All Member Governments were invited to join; 42 have so far responded to the invitation and either have designated laboratories as members or receive advice and assistance in building up calibration facilities in their countries. Two dosimetric intercomparisons were carried out in 1976–77 between primary standard laboratories and WHO collaborating centres for secondary standard dosimetry in order to check the compatibility of dosimetry throughout the world.

Nuclear medicine

9.119 A meeting on the organization of services and routine procedures in nuclear medicine was held, with the financial support of the Government of Belgium, in Brussels in November 1977. The meeting discussed primarily the organization of basic nuclear medicine services and of the procedures to be applied, the relation of nuclear medicine to a particular disease pattern in a given country and the requirements as regards premises, equipment, staff and radiopharmaceuticals. Five WHO collaborating centres for nuclear medicine were designated in 1976 and there are now eight such centres, in Denmark, the Federal Republic of Germany, India, Iran, Japan, Mexico, the USA and the USSR. A study of the feasibility of, and cost-benefit relation for, nuclear medicine applications was started jointly by IAEA and WHO in 1976 and a pilot study was carried out in India in 1976–77.

Radiobiology

9.120 A Scientific Group on the Long-Term Effects of Radium and Thorium in Man was convened in Geneva in September 1977. Several groups of investigators are engaged in studies of the biomedical effects of thorium dioxide, which was used as a radiological contrast medium in the 1930s and 1940s, and which has caused different types of cancer as a late effect. During the last 25 years, a number of surveys and epidemiological studies on the effects on man of natural alpha-emitters have been carried out in several countries, e.g., Denmark, Federal Republic of Germany, German Democratic Republic, Japan, Portugal, the United Kingdom, the USA and the USSR. The Scientific Group compiled updated information on these studies and concluded that this unique material on experience gained is essential for any forecast of the potential dangers from transuranic isotopes, the public health implications of which are of the highest importance in view of the growing uses of atomic energy.

9.121 An Expert Committee on the Use of Ionizing Radiation and Radionuclides on Human Beings for Medical Research, Training and Nonmedical Purposes was convened in Geneva in March 1977 to consider deliberate irradiation of humans, to evaluate the health risks involved and to recommend measures for keeping these irradiations under appropriate control.[1]

[1] WHO Technical Report Series, No. 611, 1977.

Radiation protection

9.122 The fourth volume of the manual on radiation protection in hospitals and general practice, *Radiation Protection in Dentistry*, was published.[1] During 1976–77, as in previous years, films for personnel monitoring of radiation workers in medical establishments were provided; about 450 films per month were supplied by the Service central de Protection contre les Rayonnements ionisants, Le Vesinet, France, to 7 countries in the Eastern Mediterranean Region, and about 600 films per month were supplied by the Institute for Radiation Protection and Environmental Research, Neuherberg, Federal Republic of Germany, to 4 countries in the South-East Asia Region and 4 countries in the Western Pacific Region.

9.123 A 10-week training course in the maintenance and repair of X-ray equipment was organized with manufacturers of radiological equipment in the Federal Republic of Germany, the Netherlands and the United Kingdom in 1976, attended by 8 engineers and engineering technicians from 5 WHO regions.

9.124 The Division of Training and Medical Applications at the Bureau of Radiological Health, United States Department of Health, Education and Welfare, Rockville, MD, USA was designated in 1977 as a WHO collaborating centre for training and general tasks in radiation medicine. The Centre assists WHO in the collection and distribution of information and teaching material for radiation medicine staff and in the preparation of guidelines for training in the medical applications of ionizing radiations.

[1] Koren, K. & Wuerhmann, A. H. *Manual on radiation protection in hospitals and general practice, vol. 4: Radiation protection in dentistry.* Geneva, World Health Organization, 1977.

Human genetics

Population genetics

9.125 Data on the genetic structure of human populations provide fundamental knowledge that can be used in solving some public health problems. Studies were initiated in Guatemala, in collaboration with the University of Geneva, on genealogical analysis, assortative mating, and frequency of mortality—antenatal, perinatal and infant—among different population groups; in Bulgaria (Department of Medical Genetics, Medical Academy, Sofia), where approximately 3000 blood donors from four districts were studied for haemoglobinopathies, glucose-6-phosphate-dehydrogenase, and some white and red cell antigens; and in Italy (Institute of Zoology, University of Ferrara), where the level of homozygosity and heterozygosity on ABO and Rh systems was estimated by testing 8244 blood donors from 26 communes.

9.126 Different individuals and different populations vary in their susceptibility to disease in areas highly endemic for diseases such as malaria, schistosomiasis and leprosy, one reason being the modified effect of the human genotype. To promote work on this subject, mainly in connexion with malaria, financial support was given to the Department of Anthropology, University of Delhi, India, to the Iranian National Blood Transfusion Service, Teheran, Iran, and to the Tissue Typing Laboratory, Addenbrooke's Hospital, Cambridge, United Kingdom.

Clinical genetics

9.127 Cooperation was continued with the University of Ibadan, Nigeria, with the Institut Pasteur, Dakar, Senegal, and with

the Institute of Medical Genetics, Moscow, USSR, in respect of research into haemoglobinopathies and allied disorders.

9.128 Haemoglobinopathies constitute an important public health problem in countries where malaria eradication has recently been achieved or is likely to be achieved in the near future. In certain parts of the world, it is necessary to improve the medical services in outpatient clinics and hospitals, with special emphasis on these conditions. A manual on haemoglobin variants [1] was prepared by the Department of Clinical Biochemistry, University of Cambridge, United Kingdom, which is the WHO collaborating centre for haemoglobinopathies.

9.129 Support was given to two institutes in respect of studies on human leucocyte antigens, in order to stimulate the use of this system in connexion with the immune response to some non-infectious and infectious diseases—the Laboratoire d'Immuno-Hématologie, Hôpital Saint-Louis, Paris, France, and the Centre for Immunogenetics and Histocompatibility of the National Research Council of Italy, Institute of Medical Genetics, University of Turin, Italy.

Biochemical genetics

9.130 Continued support was given to the Institute for Experimental Medicine, Leningrad, USSR, for the study of molecular mechanisms of some inborn errors of metabolism and their possible treatment, and to the Institute of Genetics and Biophysics, Naples, Italy, for research on glucose-6-phosphate-dehydrogenase deficiency.

[1] Lehmann, H. & Kynoch, P. A. M. *Human haemoglobin variants and their characteristics.* Amsterdam, New York & Oxford, North Holland, 1976.

Cytogenetics

9.131 With the assistance of WHO, an International Registry for Abnormal Karyotypes in Man was established in the Johns Hopkins University, Baltimore, MD, USA. About 30 countries were involved in this work. The different types of chromosomal abnormalities in man have been summarized and three books [2] have so far been prepared on this subject and are being widely used as manuals; they list approximately 25 000 cases of different chromosomal abnormalities and variants in man.

WHO collaborating centres

9.132 The following WHO collaborating centres received support: University College Hospital, Ibadan, Nigeria (glucose-6-phosphate-dehydrogenase); Zoology Department, University of Texas, Austin, USA (serum protein groups); Population Genetics Laboratory, University of Hawaii, Honolulu, USA (processing of human genetics data); Department of Clinical Biochemistry, University of Cambridge, United Kingdom (abnormal haemoglobins). A new WHO collaborating centre was established in the Institute of Genetics and Biophysics, Naples, Italy (glucose-6-phosphate-dehydrogenase).

Immunology

9.133 The immunology programme was reorientated to give the required support to the WHO Special Programme for Research and Training in Tropical Diseases. Technical help was provided for the various scientific working groups, and training

[2] *Repository of chromosomal variants and anomalies in man.* Second listing, April 1976; Third listing, November 1976; Fourth listing, April 1977. Baltimore, MD, Johns Hopkins University.

activities were increased at the WHO Immunology Research and Training Centres in operation in all regions. Courses on fundamental and applied immunology were organized in Brazil (São Paulo), India (New Delhi), Iran (Teheran), Kenya (Nairobi), Nigeria (Ibadan) and Switzerland (Lausanne/Geneva). The courses in Nairobi were supported by funds from the Government of the Federal Republic of Germany, and those in Lausanne/Geneva were supported by the Swiss Government. The Swiss Government also agreed to support the further extension of the training programme of the Lausanne/Geneva centre by providing funds for a course in French, mainly intended for candidates from French-speaking Africa, from 1978.

9.134 A programme for establishing clinical immunology laboratories in the Caribbean area was started with the financial support of the Government of the Netherlands. The programme has two phases; during the first, scientists from different countries in the area are trained in Amsterdam and during the second phase the trainees will be helped to establish laboratories on their return home. In 1977 students from Cuba, Jamaica and Surinam attended the first course in Amsterdam.

9.135 In cooperation with the Regional Offices for South-East Asia, the Eastern Mediterranean and the Western Pacific, a collaborating centre for the study of the immunopathology of dengue haemorrhagic fever was established in Bangkok. Its first activity was a meeting to identify research priorities in this field. The centre will be the focal point for coordination of research on this subject to be conducted in several countries. The programme has been organized along similar lines to the WHO Special Programme for Research and Training in Tropical Diseases.

9.136 The programme on the standardization of reagents and methodology useful in the field of clinical immunology was supported by extra contributions provided by Canada, the Federal Republic of Germany and Sweden, and was carried out in cooperation with the International Union of Immunological Societies. A standard fluorescein-labelled sheep anti-human Ig, a fluorescein-labelled sheep anti-human IgM and a standard for six serum proteins were prepared and accepted as WHO International Standards. As regards the standardization of methodology, 18 methods used for the detection of immune complexes were evaluated by 13 laboratories in different countries. A collaborative assay of the standardization of methods for detecting antiglobulin was also started.

9.137 The effects of pathological conditions such as parasitic and virus disease on the immune response were reviewed by a scientific group held in Geneva in November 1977. The field of primary immunodeficiency was also reviewed and a classification of this condition updated. A meeting was organized on the standardization of methodology and reagents for the diagnosis of leukaemias and lymphomas. A study was also made of allergic diseases, a serious public health problem whose importance is likely to increase wherever there is increased industrialization.

9.138 Research at the WHO Immunology Research and Training Centres focused on problems of public health importance such as trypanosomiasis and schistosomiasis (Nairobi), trypanosomiasis and leprosy (Geneva), leishmaniasis (Lausanne) and Chagas' disease (São Paulo). It was shown in Nairobi that the eosinophil, a type of cell whose function is unclear, plays a major role in immunity against schistosoma. The centre in Geneva showed that immunopathological mechanisms are an important

contributory factor in the development of the lesions found in experimental trypanosomiasis.

Health of working populations

9.139 The Twenty-ninth World Health Assembly, in adopting resolution WHA29.57 in May 1976, endorsed a new orientation for the occupational health programme of WHO, recognizing the impact of occupational health services on both the health and economic status of developing countries. The main features of the new orientation are that health is considered in its totality, and that occupational health services should be an integral part of public health services.

9.140 A new occupational health information system was designed, based on the completion of inventories at the country level, to identify the health problems of workers. Such inventories were prepared by the governments of 76 countries throughout the world. Inventories formed the background for a discussion at the WHO Regional Committee for Africa in September 1977, which proposed an intercountry and regional programme aimed at providing improved health services for workers and their families and the development of research and training centres in Africa, pooling the resources available to help individual countries. Similar discussions will be held later at other Regional Committees.

9.141 WHO's work during 1976–77 reflected the new orientation of the programme. The Organization collaborated in the development of model occupational health services extending from the rural areas to the central level in a number of countries, including Burma, Egypt, Malaysia and Sudan. In addition, WHO participated in establishing an occupational health centre in Guinea, a department of occupational health in the Ministry of Public Health in Bahrain and a similar project in Qatar, and the development of a national coordinating committee for occupational health services under the leadership of public health planners in Iraq. Consultants were provided for the Philippines, Sri Lanka and several Latin American countries.

9.142 Together with ILO and the African-American Labor Center, WHO organized in 1976 a conference on the health of African miners. One of the conclusions of the conference was that there is an urgent need to train personnel, to develop guidelines, and to enact regulations to combat the high incidence of diseases and accidents among miners. In addition, WHO began research programmes to explore miners' health problems in the Republic of Korea and in Zambia.

9.143 Migrant workers all over the world are subject to a complex of potentially serious health problems. Following a recommendation of the seventh session of the Joint ILO/WHO Committee on Occupational Health, a Standing ILO/WHO Committee on the Health of Migrant Workers was established. Information was collected on the state of health of migrant workers in different parts of the world, and guidelines were prepared on measures for the health protection of migrant workers, both in their countries of origin and in the host countries. These guidelines were examined at a symposium organized jointly by the Yugoslav Government, ILO and WHO in Dubrovnik in November 1977.

9.144 A priority in WHO's programme is the development of measures to combat the health problems of workers in small industries, defined as workplaces employing

up to 100 persons. A major challenge lies in providing adequate occupational health services for these workers, who are widely scattered. Trials of different models for services are currently taking place in eight developing countries. Field investigations on the health problems of this vulnerable sector of the working population were carried out together with WHO collaborating centres in 12 countries.

9.145 More than 70% of the world's economically active population is engaged in agriculture, where there are hazards arising from mechanization. WHO collaborating centres in 1976–77 studied the application of ergonomics to the design of agricultural machinery in relation to workers' health and safety, and documents were circulated for testing recommendations in different countries.

9.146 The programme cannot be effective without the development of criteria and standards and the coordination of research programmes. In 1976–77 WHO assisted in the coordination of research on simultaneous exposure to multiple hazards at work, with the assistance of collaborating centres in Bulgaria, Egypt, Japan and the USA. An international meeting in Sofia, Bulgaria, reviewed knowledge in this area in November 1976 and reported on the interaction of extrinsic occupational environmental factors with intrinsic susceptibility to occupational exposure.

9.147 In August 1976 the WHO Expert Committee on methods used in establishing permissible levels in occupational exposure to harmful agents met in Geneva with the participation of ILO and achieved a considerable measure of agreement among countries that had hitherto differed widely in their approach to this activity.[1] In accordance with the recommendations of this Committee, the Executive Board requested the Director-General to develop, as soon as possible, internationally recommended health-based permissible levels for occupational exposure to chemical agents (resolution EB60.R2).

9.148 Following an Executive Board resolution of 1974 (EB53.R23) concerning the development of criteria for the early detection of health impairment resulting from occupational exposure to health hazards, a start was made in 1976 on work to produce criteria in respect of exposure to industrial solvents. A further consultation in 1977 identified parameters indicating early biological changes resulting from occupational exposure to heavy metals (cadmium, lead, manganese and mercury). The task is formidable, since workers are exposed to thousands of potentially harmful agents. For this reason priority is being given to commonly encountered toxic substances in workplaces.

9.149 Attempts were made to produce guidelines for monitoring the work environment by means of simplified techniques, and WHO achieved some success with methods relating to heat stress, gases and vapours and to the preliminary survey of the occupational environment as a whole. However, simplification and standardization have not yet been achieved, although collaborating institutions are working on these problems in different parts of the world.

[1] WHO Technical Report Series, No. 601, 1977.

Chapter 10

Prophylactic, Diagnostic and Therapeutic Substances

Drug policies and management

10.1 IN 1976 A NEW PROGRAMME on drug policies and management was initiated with major emphasis on collaborating directly with countries in the formulation of national drug policies within the framework of their health and social development policies, and in setting priorities within the drug sector as a whole so as to ensure that safe, efficacious and economic drugs are accessible to all who need them.

10.2 Global, regional and country studies on drug policies and management were undertaken by means of on-the-spot investigations, information exchange and consultation. The following major problems were identified:

(1) Inadequate availability of essential drugs, especially in rural areas of developing countries—often 80% of the population does not receive adequate preventive and curative care including essential drugs and vaccines.

(2) Uneven distribution of pharmaceutical production between developed and developing countries (90% is located in developed countries), causing a serious economic deficit in developing countries.

(3) Excessive, inadequate or inappropriate use of drugs by health workers.

The major obstacles in the formulation of national drug policies are:

(*a*) lack of multisectoral approaches and identification of the needs for drugs —governments often place low priority on drug policies;

(*b*) lack of resources for identifying problems relating to the formulation of policies, planning and implementation;

(*c*) economic conditions—lower income and purchasing power, limited budget for health action and limited hard currency reserves;

(*d*) free market policies, especially in the private sector, based on the recognition of drugs as ordinary commodities;

(*e*) the intensive marketing powers of industries, mainly expatriate industries of transnational origin;

(*f*) the passive and uncritical acceptance of drugs, information, pricing and technology.

10.3 In response to governments' concern about drug expenditures, the Regional Office for the Americas began studies in various countries to identify factors affecting costs and to provide recommendations for reducing expenditures.

Strategies in formulating drug policies

10.4 Different strategies in formulating national drug policies and implementing the programme for improving the national management capabilities in the pharmaceutical supply system were elaborated. These strategies, which were drawn up in consultation with experts from both developed and developing countries and with representatives of United Nations bodies (UNDP, UNICEF, UNIDO and UNCTAD) and nongovernmental organizations, took into account discussions during the Executive Board, the World Health Assembly and, in particular, the Technical Presentation during the twenty-eighth session of the Regional Committee for the Western Pacific. The strategies, which are also in accordance with resolutions of the Regional Committees for Africa (AFR/RC26/R11) and the Eastern Mediterranean (EM/RC26A/R11), comprise the following technical components: (1) drug research and development to meet the needs of developing countries; (2) drug legislation and regulatory control for ensuring the provision of safe, efficacious and economical products; (3) selection of essential drugs; (4) quality control of drugs and vaccines; (5) collective and bulk procurement from multisource supply; (6) local production; (7) establishment of appropriate distribution systems; (8) transfer procedures and control of drug prices; (9) drug information, utilization surveillance and education and training of health workers; (10) better utilization of locally available natural resources, especially medicinal plants, for health care; and (11) self-medication and use of drugs at community level.

10.5 These global strategies will be reviewed at regional and country levels, in particular through technical cooperation among developing countries; in this connexion, a programme on technical cooperation among developing countries in drug policies and management was initiated in the South-East Asia Region.

Selection of essential drugs

10.6 A group of consultants considered the selection of essential drugs to meet the needs of primary and secondary health services, and drew up an example of an annotated list of about 200 essential active substances for use in primary and secondary health care. Their report was circulated to scientists, government officials and pharmaceutical industries, whose comments were reviewed by the WHO Expert Committee on the Selection of Essential Drugs in October 1977. The Expert Committee drew up a model list of nearly 200 essential active substances.[1]

10.7 WHO is ready to collaborate with countries, when required, in the procurement and production of essential drugs, by providing technical cooperation in the following fields: product selection; quality control; marketing intelligence; transfer of appropriate technology for production, storage and distribution; and improved utilization through information provision, education and training.

Use of medicinal plants

10.8 The use of medicinal plants, which are abundant in developing countries, together with Western medicines in health care is one of the most appropriate approaches to social and economic development linked to the health sector. The WHO Seminar on the Use of Medicinal Plants in Health Care, held in Tokyo in September 1977 and sponsored by the Japanese Government through contributions to the Voluntary Fund for Health Promotion, discussed the

[1] WHO Technical Report Series, No. 615, 1977.

alternative policies for the effective utilization of medicinal plants, the identification of the most useful medicinal plants in the Western Pacific and South-East Asia Regions and the required specifications for quality, and appropriate technology for efficient delivery and use.

Multisectoral approaches within the United Nations system

10.9 A UNIDO/UNCTAD/WHO intersectoral task force was formed to promote and assist cooperation among developing countries. In this connexion, a global project for cooperation among the developing countries in the pharmaceutical sector was submitted to UNDP in 1977 and approved. For the implementation of this project, WHO will act as executive agency in association with the other agencies.

Pharmaceuticals

10.10 The Organization continued its efforts to improve the quality of drugs imported and distributed in developing countries that lack their own drug control laboratory facilities.

10.11 A revised certification scheme on the quality of pharmaceutical products moving in international commerce, adopted in 1975 by the Twenty-eighth World Health Assembly (resolution WHA28.65) provides that the health authorities of exporting countries should supply a certificate stating that the product is authorized for sale in the exporting country and that the manufacturer is subject to regular inspection. By the end of 1977, 25 Member countries had agreed to participate in the scheme and had designated responsible national authorities.[1]

10.12 The development of basic tests for drugs—simplified laboratory procedures primarily designed to confirm the identity of pharmaceutical substances and to ensure that gross degradation has not occurred—is another approach designed to ensure the quality of drugs, both at the port of entry and along the distribution chain in situations where laboratory facilities do not exist. In April 1977 the Expert Committee on Specifications for Pharmaceutical Preparations recommended that work should be continued on the development of such tests and on their validation by collaborating laboratories in countries with extreme climatic conditions.[2]

10.13 The revision of drug quality specifications contained in the International Pharmacopoeia continued. With the help of experts, revised drafts of over 40 general methods of analysis were prepared on the basis of comments obtained from national pharmacopoeia commissions and other interested parties. The process of revising monographs for a number of substances was initiated, principally in respect of products essential for primary health needs.

10.14 In 1976, for the first time, a cumulative list of the 3500 international nonproprietary names for pharmaceutical substances was published from a computer printout.[3] An updated version [4] was published in 1977. The use of electronic data processing made it possible to include, besides the international nonproprietary names for pharmaceutical substances in Latin, English, French, Russian and Spanish, references to national nonproprietary

[1] Supplement to *WHO Chronicle*, 31, No. 12 (1977).

[2] WHO Technical Report Series, No. 614, 1977.

[3] World Health Organization. *International nonproprietary names (INN) for pharmaceutical substances, cumulative list No. 4, 1976.* Geneva, 1976.

[4] World Health Organization. *International nonproprietary names (INN) for pharmaceutical substances, cumulative list No. 5, 1977.* Geneva, 1977.

names, pharmacopoeia monographs and the lists of narcotic drugs under international control and schedules mentioned under the Convention on Psychotropic Substances. This new type of cumulative list will greatly assist national authorities, particularly those with limited access to recent reference literature.

10.15 During 1976-77 four lists of proposed international nonproprietary names for pharmaceutical substances were published in the *WHO Chronicle* and circulated to all Member States.[1]

10.16 With the rapid development of drug epidemiology and the demand for many national drug regulatory authorities to review all currently available drugs within their jurisdiction, the safety and efficacy of many established drugs is under re-examination. As a result, the terms under which many of these drugs are registered in various countries have been modified and other drugs have been withdrawn from use. Since different national authorities do not always take the same action with regard to the same drugs, the World Health Assembly in 1975 requested the Director-General to disseminate to Member States evaluated information on drugs (resolution WHA 28.66). A three-monthly bulletin providing background information on these decisions is now circulated ; it also includes other topical information on drug regulatory control and new drug registration.

10.17 During the biennium France and Belgium joined the group of 22 countries actively participating in the international monitoring system for adverse reactions to drugs. Work is in progress to transfer the operational aspects of the programme to a WHO collaborating centre in Uppsala, Sweden ; the current processing procedures will remain unchanged, and WHO headquarters will retain full responsibility for the programme as regards policy, coordination, participation of national and other centres, and dissemination of information.

10.18 The series of annual symposia on the clinical pharmacological evaluation in drug control, organized by the Regional Office for Europe in collaboration with the Government of the Federal Republic of Germany, continued in 1976 and 1977.

Biologicals

10.19 As in previous years, existing international reference materials were examined and replaced where necessary and new ones were established. During 1976-77, however, the demand was greatest for blood products and related substances. New technology, especially in the more sensitive measurement of concentration and activity of blood substances, particularly those relating to blood coagulation, highlighted the need for such reference materials. A long-needed, comprehensive set of requirements for the production and quality control of blood products and related substances was reviewed by an Expert Committee in December 1977. The Organization continued to promote the establishment of national policies for the provision of blood and blood derivatives.

10.20 An interregional training course in quality control of vaccines in 1976 and an interregional training seminar on biological standardization in 1977 were attended by participants from developing countries.

10.21 Many international societies with expertise in haematology, allergy and immunology provided invaluable assistance to

[1] *WHO Chronicle*, 30, No. 3 (Suppl.), No. 9 (Suppl.) (1976) ; 31, No. 3 (Suppl.), No. 9 (Suppl.) (1977).

WHO in carrying out work leading to the establishment of international reference materials. To ensure that the proposed reference materials will satisfy the rigid criteria demanded of them, guidelines for their procurement and handling were adopted.

10.22 With the financial support of UNDP, the following types of work were carried out on behalf of the Expanded Programme on Immunization : (1) research on the production and testing of more stable measles, poliomyelitis and diphtheria/pertussis/tetanus vaccines—the initial work showed that the stability of all these vaccines can be improved ; (2) the completion of manuals on the production and control of diphtheria, tetanus and pertussis vaccines ; and (3) training staff from the developing countries in the production and control of vaccines.

10.23 A reference centre for the production and control of biological products was established in Mexico to provide services to all the countries of the Region of the Americas, thereby contributing to the success of the Expanded Programme on Immunization.

10.24 The Organization cooperated with countries and UNICEF in ensuring that vaccines used in immunization programmes meet WHO requirements with respect to safety and potency, either by reading protocols of the tests on the vaccines or by submitting batches of vaccines to external control. Eleven government laboratories assisted WHO in this work.

10.25 The quality control of oral poliomyelitis vaccine continued on new seed viruses prepared from the original Sabin strains.

10.26 WHO staff visited production units in the developing countries to advise on increasing vaccine production and improving quality. A working group on bacterial vaccine production and control was convened in Zagreb, Yugoslavia, in May 1977, an interregional seminar on the setting up of quality control facilities was held in Geneva in September 1977, and a training course on this subject was held in London in October 1977.

Health laboratory technology

10.27 The most important problem that countries face today in the area of health laboratory technology is the inadequate development or even absence of laboratory services at intermediate and peripheral levels ; these services are also largely unrelated to the priority health needs of communities in rural areas and the technology employed is not appropriate to the diagnostic materials and reagents available and the existing trained manpower.

10.28 During visits of WHO staff to several countries (Chad, Lao People's Democratic Republic, Malaysia, Papua New Guinea, Sri Lanka and United Republic of Cameroon) to study how the Organization could better cooperate with them in solving these problems, it became clear that WHO should reorientate its programme with the aims of (1) providing simple and appropriate technology for laboratory support for the control of the most important health problems, (2) improving the availability of essential diagnostic reagents and equipment at a reasonable cost, and (3) expanding the transfer of laboratory technology through the organization of training activities.

10.29 Accordingly, details of methods for essential laboratory tests in clinical chemistry that can be used in intermediate laboratories were circulated, including a manual with details of procedures ; similar

lists for haematology and bacteriology are also under preparation. On behalf of WHO, the International Federation of Clinical Chemistry is drawing up simple guidelines for the preparation and evaluation of laboratory reagents, including diagnostic kits. The development of simple laboratory equipment was also pursued ; field trials of a simple photoelectric colorimeter were under way in Fiji, India, Indonesia, Iran, Malaysia and Sudan.

10.30 Work on the preparation of international control sera with assigned values for a number of constituents for use in clinical biochemistry was nearing completion. The purpose of these sera is to enable countries to evaluate their own control material and improve laboratory performance through national quality control programmes. Simple guidelines were being prepared on the practice of such quality control at the intermediate level.

10.31 The development and extension of blood transfusion services was promoted; in many countries there is a serious shortage of blood for transfusion, particularly outside the large towns. A seminar on blood transfusion was organized in Kuala Lumpur, Malaysia, for countries in the Western Pacific Region. Guidelines were prepared for the development of a countrywide service and WHO sponsored the First African Congress on Blood Transfusion held in Yamoussoukro, Ivory Coast, in April 1977.

Chapter 11

Promotion of Environmental Health

Provision of basic sanitary measures

Assessment of community water supply and excreta disposal in developing countries

11.1 FOLLOWING the report on status as of 1970, a mid-decade (1975) status survey enabled the World Health Assembly in 1976 to review progress and adopt specific regional targets for the remaining half of the Second United Nations Development Decade (resolution WHA29.47).

11.2 The country-by-country and regional information on coverage of community water supply and excreta disposal services and on the investment made during 1971–75, published in the *World Health Statistics Report*, Vol. 29, No. 10, 1976, and used widely by countries and by organizations within the United Nations system, enabled WHO to prepare a strategy and plan of action for consideration by the United Nations Water Conference.

11.3 The Regional Committee for Africa approved the evaluation activity of the long-term programme in environmental health (resolution AFR/RC27/R10), and the Regional Office convened a meeting of experts on environmental health in October 1976 to consider the waste disposal sector.

11.4 A considerable number of community water supply and sewerage projects were initiated in some countries in the Eastern Mediterranean Region; however, shortage of trained manpower posed a problem. WHO assigned sanitary engineers —for instance, in Libyan Arab Jamahiriya and Saudi Arabia—to fill the manpower gap. In other countries, technical support, through the assignment of staff, was used to assist national counterparts in formulating projects that would be acceptable for funding—for instance, in Afghanistan, Democratic Yemen, Sudan and Yemen. The current emphasis on training courses for water and sewerage systems operators will need to be continued in future years to ensure the operation and maintenance of completed installations.

11.5 Many countries of the Western Pacific Region have given lower priority to sewerage construction and services than to water supplies. However, the progress made in water supply and sewerage in this Region has been quite creditable considering the urgent demand on regional resources from many sectors. In the South Pacific, rural sanitation continued with technical cooperation from WHO and material assistance from UNICEF; here too, efforts are being made to improve levels of training and management.

United Nations Water Conference, 1977

11.6 WHO participated fully in the United Nations Water Conference held in Mar del Plata, Argentina, in March 1977. In addition to making written contributions to the background papers for the Conference, WHO regional offices participated in the preparatory meetings organized by the regional economic commissions of the United Nations. Strategies and a Plan of Action to enable countries to achieve the targets set by the United Nations Conference on Human Settlements (HABITAT) were prepared by WHO in collaboration with IBRD and were adopted *in toto* by the Water Conference.

11.7 The Conference called upon countries to adopt specific and detailed plans for water supply and sanitation services suited to their individual and specific conditions, and recommended that the international community should adopt a more effective approach in supporting, financially and in other ways, the increased national commitments of developing countries. The decade 1980–90 was designated International Drinking-Water Supply and Sanitation Decade, for implementation of the Plan of Action.

11.8 Considering the recommendations of the Conference, the World Health Assembly in May 1977 urged Member States to act upon Resolution II of the Conference immediately by proceeding with a rapid assessment of their on-going programmes and the extent to which they could usefully be expanded. The Health Assembly also requested the Director-General to collaborate actively with Member States in these activities, in close cooperation with all the relevant organizations within the United Nations system (resolution WHA30.33). The regional offices took follow-up action in 1977.

11.9 In the Region of the Americas, special attention was given to strengthening and further developing water supply and sewerage institutions to facilitate the extension of coverage and to improve operational, financial and management capacity. With economic support from the governments, UNDP, IBRD, CIDA, and the Inter-American Development Bank, WHO provided technical cooperation for institutional development in most of the countries of the Region.

11.10 Water-borne diseases are still among the most important health problems in South-East Asia, and the countries of that Region gave high priority to basic sanitary measures. Country reports on water supply and sanitation were up-dated with a view to enabling countries to review their targets in accordance with the recommendations of the United Nations Water Conference. In some countries WHO acted as the coordinating agency in evaluating the impact of basic sanitary measures, with the object of improving project formulations and securing additional external resources.

11.11 In consultation with the governments concerned, the Regional Office for Europe prepared an intercountry medium-term programme on basic sanitation, in pursuance of the World Health Assembly resolutions WHA29.46 and WHA30.33.

11.12 The 63rd Session of the United Nations Economic and Social Council in July–August 1977 approved the report of the United Nations Water Conference containing the Plan of Action, and requested the Secretary-General of the United Nations to make the necessary arrangements for an in-depth study of the implications of Resolution II of the Conference, "Community Water Supply", and for launching the International Drinking-Water

Supply and Sanitation Decade recommended in the Plan of Action. The study will be reviewed at a special session of the Committee on Natural Resources in 1978 during which WHO will present a situation analysis and other information required for planning the Drinking-Water Supply and Sanitation Decade.

Transfer and adaptation of technology

11.13 Developing countries must draw up their own criteria for the national planning and installation of community water supplies, adopting appropriate technology with maximum utilization of local resources. To this end, the Organization continued the preparation of guides and manuals for the use of health and regulatory authorities, [1, 2, 3]

11.14 The International Reference Centre for Community Water Supply, in Voorburg, Netherlands, expanded its work as a WHO collaborating centre in support of the WHO water supply programme. The Centre hosted seven major international seminars during 1976–77 and also moved into phase II of a collaborative research project on slow sand filtration. This research project brings together research institutes and government water supply departments in six developing countries. Phase II provides for the construction of at least 15 village water supplies that utilize slow sand filtration technology and includes social, economic and technical research as well as extensive training of treatment plant operators and other waterworks personnel. In addition, the Centre published a manual on hand pumps under the joint sponsorship of WHO and UNEP in 1977, the first comprehensive account of the subject.[4]

11.15 The Pan American Center for Sanitary Engineering and Environmental Sciences, Lima, Peru, continued its investigations to develop and adapt technology appropriate to the needs of the countries of the Region, including lower-cost methods for water treatment and simple technology for the disposal of waste-water. The Center, in collaboration with the International Development Research Centre, enlarged its capacity for information systems relating to transfer of technology and manpower development.

11.16 The need to improve water quality was the basis for convening the Pan American Conference on Drinking-Water Quality Improvement sponsored jointly by CIDA, the Water and Sewerage Authority of Trinidad and Tobago, and PAHO. Also as part of the programme for operation and maintenance, a regional programme was established for the analytical control of water and waste-water laboratories, involving collaboration with 73 laboratories in 25 countries in the exchange of information on laboratory methods, procedures and equipment and facilities.

11.17 The Organization cooperated with several Member countries in the preparation of national or regional plans for solid wastes management, the solution of specific problems, and the training of staff. Two regional courses on the management of solid waste were held in Buenos Aires.

[1] Salvato, J. A. *Guide to sanitation in tourist establishments*. Geneva, World Health Organization, 1976.

[2] World Health Organization. *Surveillance of drinking-water quality*. Geneva, 1976 (WHO Monograph Series, No. 63).

[3] World Health Organization. *Typical designs for engineering components*. New Delhi, 1977 (WHO Regional Publications, South-East Asia Series, No. 3).

[4] International Reference Centre for Community Water Supply. *Hand Pumps*. The Hague, 1977 (Technical Paper Series, No. 10).

11.18 In 1976 the Regional Office for South-East Asia published a manual on the management of solid wastes.[1]

Institutional development

11.19 The establishment of a Western Pacific Regional Centre for Promotion of Environmental Planning and Applied Studies was authorized (Regional Committee resolution WPR/RC28/R13). Its objectives are (1) to promote and facilitate effective collaboration among institutions and scientific and technical personnel of Member States in the Region, and (2) to support efforts in developing national self-reliance in the field of environmental health and environmental protection.

Human settlements and health

11.20 The Technical Discussions at the Twenty-ninth World Health Assembly in May 1976 dealt with the subject of "Health aspects of human settlements".[2] A general objective agreed by the participants was to ensure that health is accepted as an integral part of the planning and development of human settlements at the local, national and international levels. Priority health needs in human settlements were identified as (*a*) adequate nutrition, (*b*) adequate and safe water and hygienic means of wastes disposal, and (*c*) the provision of health care. The Health Assembly took further action in adopting resolution WHA29.46 on this subject.

11.21 The report of the Technical Discussions and the Assembly's resolution were presented at the United Nations Conference on Human Settlements (HABITAT), held in Vancouver, Canada, in May–June 1976. These and other inputs of the Organization, including contributions from the regional offices, ensured that health was prominently mentioned in the Declaration of Principles of the Conference. They also influenced the adoption of three Recommendations for National Action that relate particularly to health: one calls for priority action to establish targets for the provision of safe water and hygienic wastes disposal for all the population (by 1990 if possible), the second relates to the control of pollution and the third recommends that health, nutrition and other social services should receive priority in national development planning and in the allocation of resources.

11.22 The Regional Committee for Africa urged Member States to give high priority to health aspects when planning human settlements and requested the Director-General (1) to study the recommendations of HABITAT in respect to increased technical collaboration with countries, and (2) to collaborate with the organizational arrangements within the United Nations system for human settlements (resolution AFR/RC26/R3).

11.23 At the request of the Government of the Philippines, consultation was provided in the assessment of the health aspects of housing and human settlements development, and in the preparation of recommendations whereby the Department of Health can exert a greater influence on these development activities.

11.24 The Regional Office for Europe convened two consultations closely associated with the objectives of the HABITAT Conference—"Environmental health aspects of human settlements in Europe" and "Basic sanitation problems of European

[1] Flintoff, F. *Management of solid wastes in developing countries.* New Delhi, World Health Organization, 1976 (WHO Regional Publications, South-East Asia Series, No. 1).

[2] Martin, A. E., ed. *Health aspects of human settlements.* Geneva, World Health Organization, 1977 (Public Health Papers, No. 66).

communities". A programme of activities was recommended as a result of both consultations.

11.25 During 1977, an assessment was begun of the role of the Organization in the field of human settlements. The assessment, based on views of regional offices, is a preliminary step in identifying WHO's future policy and role in the evolving work of national and international bodies in the field of human settlements.

UNICEF/WHO joint study on the water supply and sanitation components of primary health care

11.26 In response to a decision of the twenty-first session of the UNICEF/WHO Joint Committee on Health Policy in January 1977, a joint study was started which will focus on issues involved in coordinated approaches for the planning and implementation of accelerated programmes of community water supply and sanitation within the context of overall development plans and policies of which primary health care is a part. These issues include political will and national commitment, community motivation and participation, manpower development, appropriate technology, financial requirements and issues relating to the planning, and the operation and maintenance of these services and facilities. The findings will be used as a basis for recommendations on policy formulation aimed at accelerating the provision of community water supply and sanitation as components of primary health care and as a part of general national development efforts.

Pre-investment planning for basic sanitary services

11.27 An important objective of WHO is the improvement of health through better drinking-water supplies and better arrangements for wastes disposal. The pre-investment planning programme is designed to stimulate and enhance policy formulation and planning efforts in this field. WHO collaboration is aimed both at upgrading national planning capabilities and at providing advisory expertise where required.

11.28 During 1976–77 field work on nationwide water supply and sanitation sector studies was completed in Afghanistan, Congo, Egypt, Malawi, Malaysia, Peru, Philippines, Portugal, Somalia, Sri Lanka, Sudan, Thailand and United Republic of Tanzania, bringing to 40 the total number of studies so far undertaken. In the same period, pre-investment projects were completed in 17 countries, bringing to 38 the total number carried out to date under WHO supervision. Pre-investment projects were still in operation or had been started in Afghanistan, Gabon, Gambia, Guinea, Indonesia, Ivory Coast, Lesotho, Malta, Morocco, Portugal, Rwanda, Senegal, Somalia, Sudan, Turkey and Zaire.

11.29 The increasing recognition of the importance of national planning in this sector is evidenced by the following : (*a*) five years ago, sector studies were being undertaken only at the suggestion of international agencies, whereas numerous requests are now being received from governments ; (*b*) several governments have incorporated sector study recommendations into national policy documents ; (*c*) several governments have requested WHO to collaborate in detailed national planning exercises as a follow-up to sector studies ; (*d*) the methodology developed for national studies of the water supply sector is now being considered for use in other fields of environmental health.

11.30 National sector development comprises endeavours and activities in

various ministries (planning, interior, public works, public health, finance), at both central and peripheral levels, undertaken in a rational time sequence. WHO and other external specialized organizations are increasingly being requested to participate not only in overall planning exercises but also in many diversified sector development activities, such as carrying out studies of "subsectors" (e.g., rural water supply, urban sewerage), investigating water losses and instituting measures for leakage control, improving the operation and maintenance of facilities, undertaking tariff studies, improving financial and overall organizational management, and identifying and preparing investment projects.

11.31 To date, WHO's major international partners in sector development work have been UNDP, which has financed most of the project studies undertaken by WHO, and IBRD, with which WHO has had a cooperative programme since 1971. During 1976–77, a cooperative programme with the African Development Bank was in force, and cooperative activities were undertaken or planned with several bilateral aid organizations. Contacts were established with one national and two multinational development funds in the Eastern Mediterranean Region. The growth of these collaborative activities is evidence of the wide recognition of WHO's expertise in the planning of community water supply and sanitation.

Control of environmental pollution and hazards

11.32 Concerned at the acute, chronic and delayed toxic effects that may result from exposure to chemicals in air, water, food and consumer products and at the place of work, particularly if combined with exposure to other chemicals, infectious agents and physical factors, the World Health Assembly in May 1977 requested the Director-General to study the problem and long-term strategies in this field and to examine the possible options for international cooperation that would result in more effective arrangements for the evaluation of health risks from chemicals, the provision of rapid and effective response in emergencies, and the development of manpower (resolution WHA30.47).

11.33 The programme on environmental health criteria initiated in 1973 in close collaboration with some 25 national focal points and UNEP, aiming at providing information on environmental health risks as a basis for formulating national environmental health standards and other action to control and improve the quality of the human environment, made substantial progress in 1976 and 1977. Four environmental health criteria documents were published in collaboration with UNEP.[1] A scientific group met in late 1976 to review advances made and to suggest improvements in the programme. Several new collaborating centres on environmental health effects were designated to provide continued support to the programme, for example, in Japan, Netherlands, Sweden and the USSR. The WHO Collaborating Centre on Environmental Health Effects at the National Institute of Environmental Health Sciences, USA, not only provided expert advice but also made a substantial financial contribution to the programme.

11.34 In connexion with the UNEP Conference on the Ozone Layer, convened in early 1977, a preliminary evaluation was made of the health effects of ultraviolet

[1] World Health Organization. *Environmental Health Criteria. 1: Mercury*, Geneva, 1976. *2: Polychlorinated biphenyls and terphenyls*, Geneva, 1976. *3: Lead*, Geneva, 1977. *4: Oxides of nitrogen*, Geneva, 1977.

radiation. The revision of basic safety standards for ionizing radiation was initiated in 1977 jointly with ILO, IAEA and the Nuclear Energy Agency of the Organisation for Economic Cooperation and Development. An agreement was reached with the International Radiation Protection Association with a view to the joint preparation of environmental health criteria documents on non-ionizing radiations. The Regional Office for Europe was particularly active in this field.

11.35 Environmental health standards remain an important management tool in environmental hazards control. They should be based primarily on health risk assessments, and a number of activities facilitating the application of WHO environmental health criteria documents to standard-setting and other activities related to control were initiated in 1977 with the WHO Collaborating Centre on Environmental Health Effects in Bilthoven, Netherlands.

11.36 Health aspects of the production of synthetic rubber and plastics were the subject of a symposium jointly organized with the WHO Collaborating Centre on Environmental Health Effects at the National Institute of Environmental Health Sciences, USA, in 1976. WHO also actively participated in UNEP's Industry and Environment Programme. At the request of the Environment Coordination Board, a joint study was undertaken with UNDP, UNIDO, ILO and IBRD on the impact of industrialization on environmental health.

11.37 The Regional Office for Europe issued a report on the health implications of nuclear power production, including a comparative assessment of health risks associated with alternative energy conversion cycles ; the report was presented at the International Conference on Nuclear Power and its Fuel Cycles, held in Salzburg, Austria, in May 1977. The Regional Office for Europe also studied the potential health hazards of drinking-water technology (chlorination, ozonization, use of desalination and demineralization).

11.38 The Pan American Center for Human Ecology and Health established in 1975 in Mexico City began implementing its five-year programme. It gave high priority to the assessment of the impact and effects of development projects on health and the environment.

11.39 As part of UNEP's Global Environmental Monitoring System, WHO, together with other relevant international organizations, initiated global projects on air and water quality monitoring. The objectives of these projects are to strengthen national environmental quality monitoring programmes for the protection of human health and to collect data for the global assessment of the environment. Sixty Member States participated in the extended air quality monitoring project, based on national centres and involving all WHO regional offices.[1, 2] The preparatory phase of a similar global water quality monitoring project was completed by the end of 1977 and sampling locations were selected in about 70 Member States. Technical cooperation under these projects includes the provision of equipment, training, and technical advisory services and the organization of inter-laboratory data quality control studies.

11.40 Monitoring of environmental radio-activity was continued with the

[1] World Health Organization. *Air quality in selected urban areas 1973–1974.* Geneva, 1976 (WHO Offset Publication No. 30).

[2] World Health Organization. *Air monitoring programme design for urban and industrial areas.* Geneva, 1977 (WHO Offset Publication No. 33).

participation of 27 collaborating laboratories in 19 countries. In cooperation with IAEA, a code of practice on basic requirements for personnel monitoring was revised.

11.41 In order to assess the exposure of human populations to environmental agents an integrated approach to monitoring is required, including biological surveillance. This field was discussed by a joint UNEP/WHO Government Expert meeting, which recommended a programme of monitoring selected pollutants (several metals and chlorinated hydrocarbons) in tissues and body fluids. Methods for such monitoring were discussed at a workshop jointly organized in Luxembourg in April 1977 by the Commission of European Communities, the United States Environmental Protection Agency and WHO. A group reviewed a WHO collaborative programme in another type of biological monitoring—the study of chromosome aberrations—in July 1976 and again in 1977.

11.42 A scientific group in December 1976 reviewed the possibility of using the existing health information systems, including morbidity and mortality statistics, in the assessment of health effects related to changes in environmental conditions. The group concluded that it was premature to undertake routine monitoring of health effects before health information systems had been improved. Such monitoring could be successfully undertaken, however, on specific population segments such as infants and children. Epidemiological studies on the effects of air pollution on child health, carried out for several years by the Regional Office for Europe in collaboration with six Member States, were reviewed in 1977 and recommendations were made for further similar studies in other countries of the Region.

11.43 Technology transfer is an important component of technical cooperation in the field of environmental pollution control. An example of such activities undertaken by the Regional Office for Europe in 1976 and 1977 was the preparation of manuals on the control of air pollution from industrial sources (with the support of the Federal Republic of Germany), on air and water pollution monitoring control, and on non-ionizing radiation protection. In the South-East Asia Region, WHO assisted in the development of national legislation, particularly in India, and in the preparation of an inventory of pollution sources in the Region. Among the pollution control activities in the Eastern Mediterranean Region were projects on industrial and agricultural pollution in Iran, on air pollution control in Israel, and on strengthening of an environmental centre in Pakistan. In the Western Pacific Region, WHO participated in various pollution control activities, including a water quality management project for Laguna de Bay in the Philippines.

11.44 WHO participated in the UNEP Action Plan for the Mediterranean and assumed a leading role in the project on land-based sources of marine pollution in the Mediterranean, which was carried out in collaboration with ECE, UNEP, UNIDO, FAO, UNESCO and IAEA. Two WHO Regional Offices (Europe and Eastern Mediterranean) were involved in the implementation of this as well as of another project on the assessment of coastal pollution in the Mediterranean. WHO also participated in a broader project initiated by UNEP in 1977 on the assessment and control of pollution in other regional sea areas.

National environmental health planning

11.45 The role and functions of health administrations in the field of environ-

mental health are evolving as many countries are adopting new strategies for planning, implementing, controlling and coordinating environmental quality and protection programmes.

11.46 WHO has confronted the problems involved by examining the methods through which environmental health may be incorporated into the policy and planning of developing nations for environmental protection. This activity is a part of the Organization's long-term programme on human health and environment and is carried out in support of the cooperative programmes of the regional offices with Member States interested in initiating or improving the effectiveness of environmental health planning and its coordination with other national developmental efforts.

11.47 In the Western Pacific Region, institutional development and sanitation programmes were implemented in Fiji, Lao People's Democratic Republic, Malaysia, Papua New Guinea, Samoa, Solomon Islands and Tonga. Cooperation in environmental sanitation services was provided in connexion with projects for the development of basic health services in the New Hebrides, Philippines, Republic of Korea and Solomon Islands. Some countries in the Western Pacific and Eastern Mediterranean Regions created new institutions or separate pollution control commissions with functions that overlap with those of the health authorities ; much effort will be needed to harmonize the work of these agencies in order to achieve common goals.

11.48 An interregional symposium was convened in Geneva in July 1977 to review and discuss the problems and the factors involved in environmental quality planning and policy in developing countries. It was attended by nationals from 20 countries and by representatives from United Nations economic commissions and specialized agencies. The symposium proposed a strategy for the development of a national environmental quality programme as well as directions for improvement covering the enactment of legislation, organizational arrangements, changes in the planning process, information and education. It also suggested that each country should establish a high-level national coordinating body for overall environmental policy and planning and for approval of standards ; the traditional approach involving uncoordinated actions taken by separate ministries is no longer sufficient.

Food safety

Food safety evaluation

11.49 Food safety evaluation consists of the elaboration of reports, mainly through deliberations of committees of experts, to provide advice to Member countries on the health hazards that may arise from biological or chemical contamination of food.

11.50 The task of the Joint FAO/WHO Expert Committee on Food Additives in 1976 was to provide toxicological evaluation of intentional food additives and of contaminants.[1] Toxicological assessments of a number of substances belonging to the class of artificial sweeteners, antioxidants, thickening agents and antimicrobials were carried out. In 1977 the Committee undertook evaluations and re-evaluations of substances in the general classes of acids and salts, antioxidants, food colours, sweeteners and thickening agents, as well as miscellaneous food additives. The Committee felt that annual meetings were inadequate for evaluating the increasing

[1] WHO Technical Report Series, No. 599, 1976.

amount of toxicological data and the large number of food additives, flavours, processing aids, packaging materials and contaminants. In May 1977 the World Health Assembly asked the Director-General to consider ways and means of overcoming this problem (resolution WHA30.47).

11.51 The two sessions of the Joint FAO/WHO Meeting on Pesticide Residues in 1976 [1] and 1977 provided toxicological evaluations and established maximum residue limits for pesticide chemicals belonging to the classes of organophosphorous pesticides and carbamates, as well as for other miscellaneous pest control chemicals. Acceptable daily intake figures for man were allocated to several substances and further work was recommended for those chemicals on which the existing information was inadequate for assessing potential hazards to man.

11.52 In 1976 the Joint FAO/IAEA/WHO Expert Committee on the Wholesomeness of Irradiated Food established unconditional acceptances for irradiated wheat, potatoes, chicken, papaya and strawberries, as well as provisional acceptances for cod and red fish, onions and rice.[2]

11.53 A guide to shellfish hygiene [3] was published in 1976. It covers diseases transmitted by shellfish, marine environmental factors (physical and biological) affecting the quality of shellfish and administrative measures, including legislation, establishment of a control service, provision of facilities for the treatment and handling of polluted shellfish and improvement of sanitary conditions in growing areas.

[1] WHO Technical Report Series, No. 612, 1977.

[2] WHO Technical Report Series, No. 604, 1977.

[3] Wood, P. C. *Guide to shellfish hygiene*. Geneva, World Health Organization, 1976 (WHO Offset Publication No. 31).

11.54 The WHO Expert Committee on Microbiological Aspects of Food Hygiene met in 1976 to consider the relative public health importance of various food-borne disease agents and the means for prevention and control of food-borne diseases, with particular reference to types of food processing, local food habits, and population movements and tourism.[4] Microbiological specifications for foods, cost/benefit aspects of microbiological testing of foods and laboratory quality assurance were also discussed.

11.55 The second Joint FAO/WHO Expert Consultation on Microbiological Specifications for Foods, sponsored by UNEP, finalized guidelines for the establishment of microbiological criteria, set microbiological specifications for frozen shrimps and prawns and recommended a routine method for the detection of salmonella on the surface of frogs' legs.

11.56 A working group on aviation catering problems was convened in 1976 because outbreaks of food-borne disease had shown that the organization and surveillance of aviation catering services needed strengthening. The group made a number of recommendations for the improvement of hygiene control and better implementation of existing regulations in order to provide safe food and water for air-crews and passengers. A new edition of the guide to hygiene and sanitation in aviation was published.[5]

Elaboration of food standards and codes of practice

11.57 The purpose of the work of the Codex Alimentarius Commission, whose

[4] WHO Technical Report Series, No. 598, 1976.

[5] Bailey, J. *Guide to hygiene and sanitation in aviation* (2nd ed.), Geneva, World Health Organization, 1977.

membership now stands at 115, is to protect consumers against health hazards in food and against fraud, to ensure fair practices in the food trade, and to facilitate international trade in foods.

11.58 The eleventh session of the Codex Alimentarius Commission, held in April 1976, adopted 21 international food standards, including standards for infant formulas, canned baby foods, cereal-based foods for infants and children, grape juice, pineapple juice, frozen shrimps, canned luncheon meat, citrus marmalade, cocoa butter and chocolate. The Commission has now established a total of 130 food standards. In addition, new codes of practice were adopted for the inspection of slaughtered animals, for the processing of fresh meat, egg products and poultry, for the handling of fish and for the processing and handling of frozen foods. A working group drafted a revision of the Commission's General Principles of Food Hygiene. To date, 53 countries have indicated, according to one of the methods of accepting the Codex Standards, their acceptance of several of these standards.

11.59 During 1976–77 the Commission reappraised its programme of work and priorities, giving more attention to the needs of developing countries. Codex Coordinating Committees were established in Africa, Latin America and Asia with the aim of developing a concerted approach to instituting modern food law and regulations and other aspects of food control infrastructure.

Food control

11.60 The Organization continued to stimulate the establishment in Member States of the infrastructures required for the maintenance of the safety, nutritional value and quality of foods and to promote national food control programmes, especially with regard to training. A food control strategy was developed by a working group convened late in 1977.

11.61 In collaboration with UNEP, FAO and IARC, a mycotoxin control project, combined with a follow-up study on its effect on liver cancer, was initiated in Swaziland with the aim of elaborating practical measures for mycotoxin prevention that will serve as a model for use in other African countries.

11.62 WHO collaborated in epidemiological studies on an outbreak of food poisoning in Kayes, Mali, in 1976 due to the consumption of rice contaminated with a chlorinated pesticide.

11.63 Of 27 African countries replying to a questionnaire, 23 indicated that they have legislation for food hygiene; 9 considered that livestock was slaughtered under conditions conforming to the rules. WHO cooperated with a number of countries in updating food control legislation.

11.64 A consultation on food information problems was held in 1976. As a follow-up, a survey of the organization of food control administration in Europe was started in 1977, for the purpose of preparing a concise document briefly describing the measures taken in each Member country to promote food safety and hygiene and the different ways in which this work is organized.

11.65 A conference held in October 1977 reviewed the organization and methodology of food control laboratories at central, regional and local levels.

11.66 The Organization continued to collaborate with FAO, the Arab Organization for Standardization and Metrology and other interested international agencies in carrying out food control and hygiene

activities on an intercountry basis. Collaborative programmes were discussed at a joint meeting in Alexandria in July 1977.

Joint FAO/WHO Food and Animal Feed Contamination Monitoring Programme

11.67 The Joint FAO/WHO Food and Animal Feed Contamination Monitoring Programme, funded by UNEP, was continued. Its objectives are (1) to collect, evaluate and disseminate information on the levels of certain contaminants in specific foods on a worldwide basis, and (2) to provide assistance to countries wishing to initiate or strengthen their food contamination monitoring activities.

11.68 Up to the end of 1977, 14 institutes had been designated as Joint FAO/WHO Collaborating Centres for Food Contamination Monitoring. During 1977 they provided WHO with information relating to the period 1971–75 on levels of (1) organochlorine pesticides and polychlorinated biphenyls in whole fluid milk, whole dried milk, butter and human milk; and (2) lead in canned fruit, canned fruit juice including concentrates, canned vegetables and canned milk.

11.69 During the latter part of 1977, information was obtained from 16 developing countries on their food contamination monitoring activities or their potential for such activity. At the same time, information was obtained on the needs of developing countries for facilities, equipment and personnel in order to strengthen their food contamination monitoring programmes.

Chapter 12

Health Statistics

12.1 THE MAIN OBJECTIVE of the Organization's health statistics programme is to co-operate with Member States in the development of information support required for the planning, management and evaluation of their health programmes.

12.2 National policies on health statistics have undergone considerable changes during recent years. First, the need for a close link between the health managers and the health statistical services is now clearly recognized. In the past, national health statistics services tended to be oriented towards an undefined audience including health managers, research workers, teachers and students, and the general public. While statistical information is indeed used for various purposes, statistical services cannot meet their priorities if they attempt to satisfy a wide range of users evenly. The health manager has gradually emerged as the primary and most important user of health statistics, and statistical services in many countries have been modified accordingly.

12.3 Secondly, recognition of health as an essential component of socioeconomic development has led to a review and reorientation of health statistical services within the framework of the total statistics information system. What is required, therefore, is the establishment of a cohesive national statistical policy and the development of health statistical services within this context.

12.4 Thirdly, the interrelationship between statistics and other types of information supporting national health programmes is under critical review. Health managers require a variety of quantitative and non-quantitative information, and statistical data constitute an integral part of the total information needed. Thus an overall approach to health information is considered desirable, although countries vary in the extent to which they adopt an integrated approach.

12.5 WHO's health statistics programme was reoriented in line with these trends in national policy, as well as in the light of resolution WHA29.48 calling for increased technical cooperation with developing countries. The programme is now more directly involved in comprehensive and specific health programmes than previously, when separate statistical projects were more frequent. The development and application of methodology appropriate for conditions in developing countries are emphasized in all the programme's statistical activities.

12.6 Resolution WHA30.46 adopted by the Health Assembly in 1977 emphasized

that WHO's activities in the field of statistical and other information systems and services should continue to have the necessary priority at headquarters and in the regions. WHO's central services for disseminating world health statistics to Member States and for establishing international statistical standards, particularly the International Classification of Diseases and related classifications, were maintained and improved.

Health statistical methodology

12.7 Activities in health statistical methodology were expanded to provide support services to WHO-assisted programmes, comprising (1) a sound statistical and mathematical basis for planning and executing projects and for analysing and evaluating field data ; (2) a valid methodological basis for applying operational research, systems analysis and modelling to epidemiological investigations and to the development and improvement of health delivery systems ; and (3) a relevant methodological basis for the use of scientific computing facilities in medical, epidemiological and health service applications. Advice was also given on the policy implications of these three aspects.

12.8 Increasing emphasis was given to the needs of developing countries, especially in respect of transferring to them, in an appropriate form, the technological advances in applied statistics, operational research, systems analysis and medical computing that have already been established elsewhere.

12.9 Special attention was given to the operational problems of health delivery systems, the optimal allocation of resources and the selection of intervention strategies by decision-makers. These activities included work on the methodology of public health forecasting, in accordance with the Sixth General Programme of Work, and were promoted by collaboration with the International Institute of Applied Systems Analysis.

12.10 In Europe, close contact was maintained with several intergovernmental and nongovernmental organizations in the field of informatics and medical computing.

Dissemination of statistical information

12.11 Following the adoption of resolution WHA29.22 by the World Health Assembly, groundwork was undertaken during 1976–77 for the preparation of the sixth report on the world health situation, to be issued in 1979. Coordinated with this work, progress was made in the preparation of the third edition of *Health Services in Europe*, also scheduled for publication in 1979.

12.12 The latest statistics available from the Member States were included in the *World Health Statistics Annual, 1973–76*, published in three volumes,[1] and the *World Health Statistics Annual, 1977*, also published in three volumes.[2]

12.13 The *World Health Statistics Report*, another vehicle for transmitting information of current international public interest, appeared quarterly instead of

[1] World Health Organization. *World Health Statistics Annual, 1973–76. Volume I: Vital statistics and causes of death, Volume II: Infectious diseases: Cases, deaths and vaccinations*, and *Volume III: Health personnel and hospital establishments*. Geneva, 1976.

[2] World Health Organization. *World Health Statistics Annual, 1977. Volume I: Vital statistics and causes of death, Volume II: Infectious Diseases: Cases and deaths*, and *Volume III: Health personnel and hospital establishments*. Geneva, 1977.

monthly as from 1977. Accent was put on analytical studies on special subjects. In view of the priority given by Member States to the reduction of fetal, infant and childhood mortality and cancer mortality, revealed by an opinion survey of users of WHO's statistical publications, various aspects of these topics were featured in several issues of the *Report*. In addition, a special issue was devoted to water and sanitation.

12.14 A project on cancer statistics information systems was commenced jointly with IARC, with the aim of improving statistics on cancer at both the national and international levels ; an initial meeting to discuss procedures was held in Minsk, USSR, in December 1976. A pilot project was also begun on monitoring mental health needs ; procedures were discussed at a meeting held in Geneva in March 1976 and at a second meeting, held jointly with the United States National Institute of Mental Health in Washington, DC, in 1977, and attended by collaborators from participating countries.

12.15 Among the UNFPA-supported activities, international collaboration by experts on the basic methods of analysis resulted in the publication of a manual of mortality analysis in 1977.[1] The first volume of the results of another UNFPA-funded undertaking, a comparative study of the effects of social and biological factors on perinatal mortality, was completed in 1977. Data from an *ad hoc* survey on fetal, infant and early childhood mortality and fertility, carried out in Afghanistan, Algeria and Sierra Leone, also funded by UNFPA, were extensively analysed.

12.16 The fourth survey on the health demography of the African Region was completed, on the subject of three aspects of health services—personnel, training institutions and infrastructure. Seventeen countries were covered in this survey.

Development of health statistical services

12.17 Technical cooperation with Member countries continued with a view to promoting and strengthening national health information systems, and particularly their statistical component. The programme covered about 50 developing countries and is designed to improve information services for decision-making in health. The Regional Committees for South-East Asia and Europe devoted their Technical Discussions to the topic of information systems in the health services.

12.18 In addition to the activities under the regular budget, the following activities were financed from the Voluntary Fund for Health Promotion : a project for developing a health statistical information system in Pakistan, a workshop on the development and improvement of a national health information system in Tunisia, and systems analyses of vital statistics services conducted in Honduras, Jamaica, Mexico, Philippines and Thailand.

12.19 Other major activities undertaken included : a regional working group on the measurement of levels of health, held jointly with the International Epidemiological Association, in Nieborow, Poland, in March 1977 and the preparation of a publication on the measurement of levels of health ;[2] a joint working group with the International Federation for Information Processing on health data banks,

[1] World Health Organization. *Manual on mortality analysis*. Geneva, 1977.

[2] World Health Organization. *The measurement of levels of health*. Copenhagen (WHO Regional Publications, European Series, in preparation).

held in Prague in August 1976 ; a regional seminar on civil registration, in Washington, DC, in October 1977 ; a working group on primary health records and their use in developing countries, organized jointly with the Faculty of Medicine and Health Centre, Rijeka, Yugoslavia, in October 1977 ; a regional seminar on medical records, in Montevideo, Uruguay, in November 1977 ; and the preparation of an outline for an information system for analysing national health expenditures and cost.

12.20 The activities for developing and improving medical records systems continued in four Regions (the Americas, South-East Asia, Eastern Mediterranean and Western Pacific). Education and training programmes for health statistics personnel and teachers were carried out in all regions.

International Classification of Diseases

12.21 The biennium 1976–77 saw the culmination of the programme for the decennial revision of the International Classification of Diseases. The draft proposals for the Ninth Revision (ICD-9) recommended by the International Revision Conference in 1975 were adopted by the World Health Assembly in 1976 (resolution WHA29.34). The new revision, to come into use on 1 January 1979, is intended to be much more useful to the clinician than previous revisions, which were oriented more towards the medical statistician. It includes new definitions and recommendations concerning maternal and perinatal morbidity and mortality, and a proposed form of certificate of cause of perinatal death.

12.22 The Health Assembly also approved the publication of supplementary classifications, for trial purposes, of Impairments and Handicaps and of Procedures in Medicine, endorsed recommendations of the Revision Conference supporting the collection of morbidity and mortality statistics by lay personnel in developing countries and proposed the preparation of the International Nomenclature of Diseases as an improvement to the Tenth Revision of the International Classification of Diseases (resolution WHA29.35).

12.23 By the end of 1977, ICD-9 had been published in English,[1] French and Spanish, and the Russian edition was in preparation. Of the supplementary classifications, the provisional International Classification of Procedures in Medicine and the Classification of Impairments and Handicaps are being published in 1978. An adaptation of ICD to oncology (ICD-O) [2] was prepared in collaboration with IARC and with assistance from the US National Cancer Institute. The English version was published at the end of 1976 and brought into immediate use in many cancer registries, including that of the USA. Versions in other languages were in preparation.

12.24 In collaboration with the Regional Office for South-East Asia, a classification suitable for use with lay reports of morbidity and mortality was drafted ; field trials were in progress in a number of countries of the Region by the end of 1977. Work on medical nomenclature was started in cooperation with CIOMS, and drafts on respiratory diseases and neurological disorders were prepared and circulated to competent bodies for comment.

12.25 In 1977 courses intended to familiarize coders with the provisions of

[1] World Health Organization. *Manual of the international statistical classification of diseases, injuries, and causes of death*, 1975 revision. Geneva, 1977.

[2] World Health Organization. *ICD-O : International classification of diseases for oncology*. Geneva, 1976.

ICD-9 were organized by the Regional Offices for Africa (in Accra), Europe (in London, Moscow and Paris) and the Western Pacific (in Kuala Lumpur, Singapore and Sydney).

12.26 Two new International Centres for the ICD were established in Washington, DC (for North America), and in São Paulo, Brazil (for the Portuguese language).

Chapter 13

Health and Biomedical Information

13.1 THE BIENNIUM 1976–77 was a period of challenge and change for the information services of WHO. Already charged with primary responsibility for implementing the part of resolution WHA25.26 of 1972 that called upon the Organization to assume a leading role in developing biomedical communications, these services suffered substantial cuts in funds and manpower in the reallocation of the regular budget funds towards increased technical cooperation during 1977–80 required by resolution WHA29.48.

13.2 In 1976 the health and biomedical information programme was formed, linking the WHO publications programme, which maintains a flow of biomedical information from the Organization to the outside world, with the library and health literature services, which are concerned with the flow of biomedical information from the outside world into the Organization. A third component of the overall programme was concerned with transmitting health information to the public. This reorganization was an attempt to enable WHO to deal more responsively and coherently with its widely varied target audiences, which include, for instance, research workers in collaborating centres, public health administrators in both developing and developed countries, and the interested public.

13.3 The content of certain periodicals and publications produced at headquarters has been or is being modified so as to reflect the emphasis throughout the Organization on meeting the problems and needs of the developing world. To tap the resources of knowledge and expertise in the regions and make these available, regional publications programmes are being developed or expanded. The concept of regional medical libraries and related health literature services, already established in several regions, is in the process of being expanded. With the agreement of the Member States concerned, two new working languages, Arabic and Chinese, are being introduced selectively in the documentation for the World Health Assembly and the Executive Board, and in the case of Arabic in publications, so as to provide a service to persons using these languages with minimum diversion of funds from technical cooperation. Similarly, the transfer of the Spanish translation facilities for technical publications to the Region of the Americas from headquarters should maintain the flow of essential information in Spanish at lower cost.

13.4 In the light of resolutions WHA 29.25 and WHA29.48, an examination was made of technical documents production at headquarters, with a view to improving quality and reducing costs, and in 1977 a start was made with the control of technical

documents. By making distribution more selective it was possible to reduce the number of printed pages by some 34%(5 million pages) compared with 1976. The policy of restricting the output of technical documents will be maintained in 1978, when it is expected that a further reduction in volume will be achieved, with consequent economies in staffing, printing, translation and distribution costs.

Health literature services

13.5 The library and health literature services activities of WHO during the biennium were focused primarily on responding to resolution WHA29.48, i.e., reorienting the work to make additional funds available for technical cooperation with Member States. Certain existing operations were re-examined and several new initiatives were proposed.

13.6 One important change was the phasing out of the WHO MEDLINE Centre. Despite the abundant information on research and clinical medicine that the Centre made available, a review in the light of the new emphasis on technical cooperation with developing countries revealed that the MEDLARS/MEDLINE data base was not sufficiently oriented to public health problems in developing countries to justify the continuance of a WHO centre. In cooperation with the regional offices, other arrangements were made for Member States in need of the MEDLINE service to gain access to it.

13.7 In furtherance of the idea of a network of regional medical and public health libraries and documentation centres that would bring health literature much closer to users in Member States, arrangements were made by the Regional Office for the Eastern Mediterranean and by the Pahlavi Library of Medicine and Biomedical Communications Centre in Teheran, Iran, for the facilities of this library to be available on a regional basis as from January 1978.

13.8 To make current medical literature available to developing countries at minimum cost, work continued on the programme of arranging shipments of journals and other literature from libraries in developed countries to countries more acutely in need of this material, the cost of shipment being borne wherever possible by donor institutions. This programme is being extended to assist in building up the stocks of the WHO Tropical Diseases Research Centre Library at Ndola, Zambia, and in replenishing the depleted medical libraries of Viet Nam.

13.9 In an effort to determine what additional steps WHO can and should take in assuming a leading role in developing biomedical communications in response to resolution WHA25.26, tentative plans were made for the convening during 1978 of a meeting of experts in this field from both developed and developing countries, as called for in this resolution.

13.10 Also in progress was the comprehensive reclassification of much of the material in the WHO library to arrange it in accordance with priority programmes and projects.

WHO publications

13.11 Two interrelated trends emerged in the WHO publications programme during the biennium—a reduction in the number and volume of some headquarters publications, particularly the *Official Records*, in compliance with resolutions WHA29.25 and WHA29.48, to release funds for technical cooperation in developing countries, and further development of the regional publications programme.

13.12 As a consequence of much closer cooperation between headquarters and the regional offices, the Regional Office for the Americas (which has had its own technical publications programme for 50 years) agreed to issue Spanish translations of some headquarters publications in its *Scientific Publication* series. The first volume of the *WHO Regional Publications, European Series* was published in 1976 and several others appeared in 1977. The South-East Asia Regional Office also began publishing its regional series in 1976.

13.13 The Health Assembly examined the high cost of conference documentation and recognized that the main costs arose from (1) the sheer volume of documentation, and (2) the number of languages into which the documentation had to be translated. To reduce the volume, the Health Assembly agreed to a 50% cut in the Director-General's comprehensive report to the Health Assembly and the United Nations on the work of WHO and the proposed programme budget, presented to it biennially, and the financial report, presented annually (resolution WHA30.30). The Executive Board approved recommendations of its *ad hoc* committee appointed to study the whole question of conference documentation and of official and working languages (resolution EB60.R7). The implementation of these recommendations would drastically reduce the extent to which the Board's summary records are translated from the original English; similar recommendations were made for both the verbatim records and the summary records of the Health Assembly's meetings. The net result of the reductions already approved and those to be submitted to the Thirty-first World Health Assembly would allow a reallocation of some US$ 900 000 a year for other programmes.

13.14 Among the periodicals issued by headquarters, three volumes (18 issues) of the *Bulletin of the World Health Organization* were published during the biennium in a bilingual (English and French) edition and also in Russian. In addition the necessary groundwork was laid for a complete reorientation of the *Bulletin*, beginning with the first issue of 1978, to enable it to respond more closely to technical cooperation needs of Member States; in particular, this reorientation reduces the proportion of narrowly specialized scientific articles and replaces them with review articles providing authoritative accounts of the current state of scientific knowledge so that readers, particularly those in developing countries without access to such information, can keep abreast of new developments in fields of concern to WHO.

13.15 Two volumes (24 issues) of the *WHO Chronicle* were published in separate English, French, Russian and Spanish editions during the biennium. While its overall general form remained unchanged, efforts were made to improve the effectiveness of the *Chronicle* as a vehicle of information transfer by the inclusion of livelier and more topical articles, greater use of illustrations and added stress on regional activities.

13.16 During the same period two volumes (8 issues) of the *International Digest of Health Legislation* were issued in separate English and French editions. In January 1977 responsibility for the publication of the *Digest* passed from the Legal Division to the Health and Biomedical Information Programme. With the Health Assembly reflecting renewed interest in health legislation as a tool of technical cooperation in its adoption of resolution WHA30.44, the future role of the *Digest* and other health legislation activities is now under study. One possibility being explored is that of encouraging existing institutions around the world to become WHO collaborating centres in health legislation; these would

act as repositories of information on various aspects of the subject and would assist in providing an information service for Member States.

13.17 In the case of the non-periodical technical publications, the emphasis was on limiting publication to material that is of direct value to Member States, and in particular to developing countries. One result of this policy is that information about specialized activities of interest to only a limited audience is increasingly being offered for publication in non-WHO media. Another is that duplicate publication of the same material by two or more international agencies has been discouraged, and the principle of one agency being the sole publisher has been introduced.

13.18 Simpler and less costly publication processes have, whenever possible, been brought into use. Publication in the *WHO Offset Publications* series, using typescript instead of letterpress reproduction, is being increasingly chosen. The *Technical Report Series*, the *Monograph Series*, and the *Public Health Papers* were continued, as were non-serial publications. The *WHO Food Additive Series* and *Pesticide Residues Series* were discontinued, but a new series entitled *Environmental Health Criteria* was introduced in collaboration with UNEP.

Public information

13.19 Reflecting the more problem-oriented approach being taken by WHO in developing new programmes to combat the major illnesses of the world, the themes of the two World Health Days during the biennium were: prevention of blindness; and immunization against the six preventable diseases of childhood—diphtheria, whooping cough, tetanus, poliomyelitis, measles and tuberculosis. In addition to the extensive press publicity generated by the World Health Days, 150 radio networks in over 50 countries broadcast special programmes. In the South-East Asia and Western Pacific Regions, special recorded messages from the Regional Directors were broadcast by over 30 national networks. In the European Region a series of five television spots produced for WHO by the International Green Cross and emphasizing the importance of immunization was shown on seven national networks.

13.20 As part of the considerable public interest stimulated by the themes of the two World Health Days, a number of African countries set up special organizations to deal with the problems of preventing blindness. In 1977, President Carter of the United States launched a major nationwide campaign to reach millions of children not already immunized against the six preventable childhood diseases. Similar stress was given to immunization in Malaysia and Singapore, where hospitals, maternal and child health clinics and local health centres joined forces to promote immunization. The immunization programmes in Ghana were the subject of a 20-minute colour film, jointly produced by WHO and UNICEF in collaboration with the Ghana Film Industry Corporation; 100 copies of this film were sold, an indication of the interest it aroused.

13.21 Apart from the World Health Days, the major public health news story of the biennium was smallpox eradication, which was the subject of a number of press releases and features. Interest in this story was especially high in the African and South-East Asia Regions because eradication was certified in parts of central and southern Africa and in Bangladesh, Bhutan, Burma, India and Nepal.

13.22 *World Health* further improved its circulation with the resumption of a quar-

terly Italian-language edition, bringing its aggregate circulation in all languages—Arabic, English, French, German, Italian, Persian, Portuguese, Russian and Spanish—to about 230 000 copies per issue. The frequency of WHO's feature radio programme was increased from 10 to 12 times a year and it was broadcast by about 250 stations around the world. Rural radio as a means of promoting health was the subject of a seminar sponsored by the Regional Office for Africa, attended by radio representatives of the seven countries covered by the onchocerciasis control programme in the Volta River basin area.

13.23 In addition to the World Health Film Day films—*Focus on Sight* in 1976 and *Protect Them Now* in 1977—film production included *Did You Take Your Tablets* ?, produced with the assistance of the Royal Dutch Tuberculosis Association ; *Seeds of Health*, dealing with primary health care in Guatemala, produced with the assistance of the World Council of Churches ; and *The Powerful Protector*, showing how vaccines are manufactured, produced with the assistance of the Green Cross of the Federal Republic of Germany. The South-East Asia Regional Office produced three films : one on smallpox in 1976 entitled *India Remains Alert*, and *Food for Sight* and *Out of the Ivory Tower* in 1977, dealing with the prevention of blindness and the role of medical students in primary health care, respectively. With the financial support of the New Zealand Government, the Regional Office for the Western Pacific is completing a film on filariasis. The Regional Office for Africa is working in close cooperation with the National Film Office of Canada (Office national du Film du Canada) to help in the production of 32 educational films for use in training auxiliary health workers in Africa. Work began on several films during 1977 as part of this US$ 1.2 million programme, which extends over three years.

Language services

13.24 The scope of the functions of the language services was broadened by the adoption of Arabic and Chinese as working languages (World Health Assembly resolutions WHA28.33 and WHA28.34.) It was agreed that implementation would be selective, and limited programmes were established in close cooperation with the Regional Office for the Eastern Mediterranean and the Council of Arab Ministers of Health in the case of Arabic, and with the appropriate national authorities in the case of Chinese. A staff of three Arabic and four Chinese translators was recruited.

13.25 The overall shift from centralized activities towards more technical cooperation with Member States in response to resolution WHA29.48 involved heavy cuts in the translation staff as projected in the revised 1978–79 programme budget.

13.26 Another move towards decentralization is the setting up of a PAHO/WHO Publications and Documentation Center to be located in Mexico City. It is planned that this Center will be run by PAHO and it will be responsible for technical publications in the Spanish language. Preparations are well advanced and the Center is expected to become operational in 1978.

Technical terminology

13.27 The progressive expansion of WHO activities has emphasized the need for standardized technical terminology that will permit clear and unimpeded communication between different disciplines and between the Organization and its Member States. Accordingly, the technical terminology service was strengthened during the biennium. One example of its work is the major effort, now underway, to standardize definitions of often-used but frequently misunderstood terms in the field of basic health care. The Regional Office

for Europe prepared a glossary on air pollution [1] that brings together, for the first time in a single volume, recommended terminology in this multidisciplinary field. All such glossaries are developed in close coordination with interested intergovernmental and nongovernmental organizations and headquarters, regional and project staff.

13.28 Acting on a report on the use of units of the Système international d'Unités (SI) in medicine prepared in response to resolution WHA29.65, the Thirtieth World Health Assembly recommended their use "by the entire scientific community, and particularly the medical community throughout the world" (resolution WHA 30.39). The only exception was the recommendation that instruments for measuring pressure within the body be temporarily graduated in both kilopascals and millimetres of mercury. In the same resolution the World Health Assembly requested the preparation of a booklet to assist the change to SI units that would be brought to the attention of all Member States of the Organization. This booklet,[2] describing SI units, discussing factors involved in their practical application, and giving factors for converting values in old units to values in SI units, was prepared in cooperation with another intergovernmental organization (the Bureau international des Poids et Mesures) and with nongovernmental organizations responsible for clinical chemistry, haematology, nutrition, and radiology, and was published with their approval.

[1] World Health Organization. *Glossary on air pollution.* Copenhagen (WHO Regional Publications, European Series, in press).

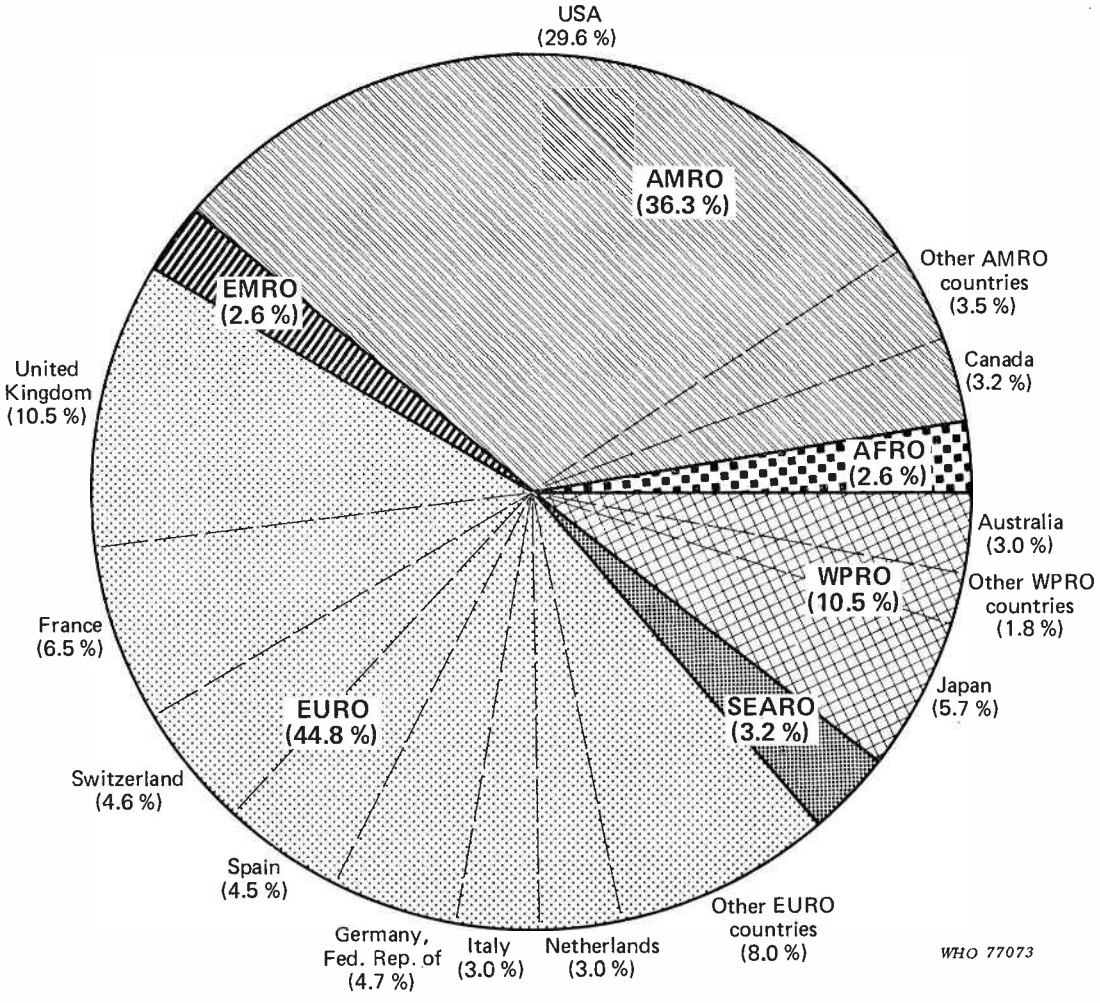
[2] World Health Organization. *The SI for the health professions.* Geneva, 1977.

Distribution and sales

13.29 New sales promotion measures aimed at bringing WHO publications to the attention of widely varied groups of potential readers throughout the world were intensified during the biennium. In 1976, for example, WHO publications were shown at 87 international and national conferences and book fairs covering about 30 different subject areas, were advertised in scientific and technical journals and were supplied to a large and growing network of such journals for review purposes. Catalogues and leaflets listing publications by subject were distributed to interested groups of scientists and health workers, and mailing lists were established to enable the Organization to keep addressees regularly informed of new publications in their fields of interest.

13.30 Systematic polling of certain categories of readers who receive publications free of charge eliminated inactive recipients and permitted the reorientation of free distribution to new recipients. The computerization of the distribution and sales activities, particularly the mailing lists, progressed satisfactorily, and when completed will not only substantially increase the distribution and sales network but also enable the whole distribution process to respond more flexibly and effectively to the needs of Member States, regional offices, WHO Representatives and the Secretariat.

13.31 Indicative of the success of these promotional activities is the fact that sales have reached record levels despite the worldwide recession that has seriously reduced library acquisition budgets in certain countries. Fig. 13.1 shows the distribution of sales of WHO publications in the regions and in certain countries in 1976. The total revenue from the sale of WHO publications amounted to US$ 1 494 000 in 1976 and US$ 1 857 000 in 1977.



The codes AFRO, AMRO, SEARO, EURO, EMRO and WPRO are used in this figure to denote the African Region, the Region of the Americas, and the South-East Asia, European, Eastern Mediterranean and Western Pacific Regions, respectively.

Fig. 13.1 Distribution of sales of WHO publications in 1976, by region and in certain countries.

Chapter 14

Constitutional, Legal and Administrative Developments

Constitutional and legal matters

14.1 DURING THE BIENNIUM 1976–77 five new Members joined the Organization: Angola, Cape Verde, Papua New Guinea (formerly an Associate Member), Sao Tome and Principe, and Surinam. On 12 July 1976 the Socialist Republic of Viet Nam notified the Director-General of the unification of the former Democratic Republic of Viet-Nam and of the Republic of South Viet-Nam (both WHO Members) and stated that it would continue to exercise the official membership; this notification was circulated to Members and Associate Members and brought to the attention of the Thirtieth World Health Assembly. As a result of these changes the Organization had, at the end of 1977, 150 Members and two Associate Members.[1] A list of Members and Associate Members is given in Annex 1.

14.2 The Twenty-ninth World Health Assembly adopted on 17 May 1976 a further amendment to Articles 24 and 25 of the Constitution, increasing to 31 the number of seats on the Executive Board, last brought up to 30 by an amendment which had been adopted in 1967 and which had entered into force in 1975. The new amendment will similarly enter into force upon the deposit of instruments of acceptance by at least two-thirds of the Members. A total of 18 such instruments had been deposited by the end of 1977.

14.3 The amendments to Articles 34 and 55 of the Constitution which had been adopted in 1973 and which permit a transition to biennial budgeting came into force on 3 February 1977 upon the deposit of the 100th instrument of acceptance. The Thirtieth World Health Assembly thereupon introduced biennial budgeting with effect from the biennium 1980–81.

14.4 In October 1977, following a resolution of Sub-Committee A of the Regional Committee for the Eastern Mediterranean, the Government of Kuwait proposed an amendment to Article 74 of the Constitution which would provide for an authentic Arabic text (in addition to the Chinese, English, French, Russian and Spanish texts) and submitted such a text for adoption by the World Health Assembly. The Director-General communicated this proposal to Members, informing them that the necessary steps would be taken to enable the Executive Board to put this item on the provisional agenda of the Thirty-first World Health Assembly to be held in May 1978.

[1] The associate membership of one of these, Southern Rhodesia, is regarded as being in suspense.

14.5 During the biennium 1976–77, five Members (Bahamas, Greece, Republic of Korea, Tonga and Uruguay, became bound, through instruments of accession or declarations of succession, by the Convention on the Privileges and Immunities of the Specialized Agencies together with its Annex VII, which relates specifically to the World Health Organization.

14.6 Under a project agreement with the United Nations Environment Programme, WHO prepared a series of studies serving as the basis for the drafting of a Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources. Drafts for this Protocol, which is to supplement the Convention signed in Barcelona on 16 February 1976, were considered at intergovernmental meetings held with WHO participation in February 1977 in Athens and in October 1977 in Venice. It is expected that the Protocol will be signed before the end of 1979.

Administration [1]

Establishment

14.7 On 30 November 1977, the total staff (excluding staff of the Pan American Health Organization) was 4226 as compared with 4338 on 30 November 1975 and 4236 on 30 November 1976, a decrease of approximately 2.35% between 1975 and 1976, and a 2.6% decrease at the end of 1977.

Staff development and training

14.8 The staff development and training programme established in 1975 became fully operational in the regions. Committees were established in the regional offices to advise on training needs and to collaborate in the design and conduct of specific courses for regional staff members.

14.9 Two four-week training courses in management for senior regional and senior national health staff were conducted, in Manila in 1976 and New Delhi in 1977, with participants from 12 developing countries. These courses were followed up by WHO-supported national courses in the Philippines and Papua New Guinea in 1977, and others are planned elsewhere. Training courses in management for field and regional office professional staff in the Region of the Americas were conducted in Brasilia and Washington in 1976 and in Bogotá, Panama City and Washington in 1977. The number of professional staff involved in programmes covering various aspects of management training in headquarters and the regions totalled 178.

14.10 Courses for locally recruited regional office staff covering the topic of teamwork in office management, attended by a total of 135 general service staff, were conducted in the Regional Offices for the Americas, South-East Asia and the Eastern Mediterranean.

14.11 At headquarters the programme for general service staff concentrated on management training, and 91 staff members participated in management training programmes and workshops. Also at headquarters, new on-entry briefing courses for general service staff were put into operation. Skills training was provided at headquarters and at several regional offices.

14.12 A total of 53 staff were granted study leave, mostly for refresher training.

14.13 A plan of action was formulated to implement World Health Assembly resolutions WHA28.40 and WHA29.43

[1] Budgetary and financial data are presented separately in the annual financial reports.

on the recruitment, promotion and training of women in WHO.

Office accommodation

14.14 Construction of a new prefabricated building for WHO headquarters, containing 132 offices and 3 small meeting rooms, authorized by World Health Assembly resolution WHA28.24, was completed and the building was occupied in the summer of 1976. This move made it possible to terminate the rental agreement for office space in the ILO building some three months earlier than planned.

Supply services

14.15 The problems that affected supply operations after the energy crisis continued in 1976–77, albeit somewhat lessened. Commodity prices and shipping costs continued to rise, deliveries were slow, shipping services were less frequent, and suppliers were unwilling to accept small orders.

14.16 Despite these constraints, the value of supplies and equipment provided through headquarters purchasing operations during the period 1976–77 reached the record level of 90 119 line items, with a total value of US$ 46 551 526. This figure includes US$ 13 526 089 for reimbursable purchases made on behalf of Member Governments, the United Nations and specialized agencies within the United Nations system, and governmental and nongovernmental organizations. Purchases from research grants awarded to investigators or institutions amounted to US$ 2 126 732 and represent 4.57% of total purchases.

14.17 A large portion of the purchases were financed from extrabudgetary funds. Some of the important operations during the biennium were : assistance to the most seriously affected countries through the Secretary-General's Special Account for the United Nations Emergency Operation (US$ 7 389 272), rehabilitation of health services in the Lebanon, through the United Nations Trust Fund for Lebanon (US$ 1 895 172), and major assistance in the form of medical supplies and equipment to the Lao People's Democratic Republic and to Viet Nam from the Voluntary Fund for Health Promotion, from the special account for Indochina Humanitarian Assistance, and from regular funds (total US$ 2 478 855 for both countries). Purchases were continued in support of the long-term programme of United Nations Humanitarian Assistance to Cyprus, funded by UNHCR and amounting to US$ 1 113 725 for the two-year period.

14.18 WHO continued to participate in the studies of the Working Group on Inter-Agency Procurement Services, whose goal is to identify common user items and obtain better terms from major suppliers through bulk buying.

Chapter 15

Regional Trends[1]

African Region

15.1 DURING 1976–77 the Regional programme was adapted to meet the new aims of the world programme, and there was a consequent overhaul of structures to enable the problems of the Region to be tackled without an increase in staff. Seven new Member States that have recently become independent have joined the African Region and one State has been transferred to the Region at its own request. The Member States of the Region include the majority of the least developed and most severely affected countries listed by the United Nations—countries that are very often afflicted by natural disasters—and it includes most of the national liberation movements recognized by the Organization of African Unity.

15.2 In the reorganization of the Regional Office, units have been replaced by multidisciplinary groups and steps have been taken to increase decentralization and delegate decision-making, as far as possible, to the level at which the problem has to be solved. WHO Representatives' offices have been strengthened by the addition of administrative officers or administrative assistants. Staff has been cut by 10%, in spite of the fact that the Region has recently become administratively responsible for the onchocerciasis control programme in the Volta River basin area.[2]

15.3 Epidemiological surveillance data are now centralized and processed at the Regional Office, thus allowing the staff of the three epidemiological centres in Nairobi, Brazzaville and Abidjan to be relocated in five strategically sited advanced units for the promotion and support of the Expanded Programme on Immunization.

15.4 All WHO teams collaborating on projects for the development of health services or for the training of health personnel try to introduce the primary health care approach, and in most countries primary health care has now begun or is at the planning stage. A meeting of regional experts held in 1977 reviewed the status of the situation in this field, where active community participation is being given the main emphasis.

15.5 Most countries of the Region include a health plan in their national plans for social and economic development. Fourteen have used or are preparing to use the health programming method proposed by WHO and so introduce strategic planning into such plans and follow it by practical planning to produce projects that can be efficiently managed.

[1] Fig. 15.1 on page 181 shows the location of the WHO regional offices and the areas they serve.

[2] See also page 92.

15.6 After a short trial period, WHO's new information system has been extended to cover the whole Region since it ties in with the two management methods recommended by the Regional Committee: management by objectives and management by exception. Only the information essential for decision-making is passed on to a higher level, thus cutting down paper work at regional level and strengthening technical cooperation at country level without having to increase staff. The WHO information system in the African Region is closely linked to the national information systems that provide the basis for long-term planning, medium-term programming and periodic evaluation of the world health situation.

15.7 The training of health personnel remains the cornerstone of health development but it is changing rapidly with a view to producing the type of manpower that health teams need if they are to attain the social and health objectives defined by the World Health Assembly in resolution WHA30.43.

15.8 The situation as regards environmental health has somewhat improved. Much has been done but much still remains to be done. New approaches and new techniques making use of local materials and local personnel are being examined instead of resorting as is usual to imported products that are difficult to service and, owing to shipping charges, cost twice as much as in their country of origin.

15.9 Studies are underway to look into the possibility of local manufacture of pharmaceutical products, biologicals and therapeutic substances and vaccines with a view to cutting down costs and facilitating the supply of products essential for protecting the health of the least privileged population groups. Traditional African medicine and medicinal substances come under this heading. The African Development Bank is taking a special interest in this type of work and ECA, UNIDO, UNICEF and WHO are all contributing to it.

15.10 Research activities are expanding as the number of research workers and institutes increases. The two main topics of interest are the control of communicable diseases and the development of health care systems to help solve problems in priority fields, as far as available resources allow.

15.11 As regards international coordination, at country level national authorities are increasingly taking a greater share of responsibility in their relations with external sources of cooperation. At the subregional level, one area in which cooperation between various countries is being strengthened is the development of major lakes and river basins. At the regional level, the Conference on Health Coordination and Cooperation in Africa provides a meeting-place every two years for the countries of the Region and for other WHO Member States from outside the Region that are concerned with development in Africa. The distinction made between donor and recipient countries is becoming obsolete and is giving way to the concept of collaboration among WHO Member States.

15.12 Collaboration among the countries of the Region continues to expand. Even countries like Niger that have limited resources and have suffered natural disasters have contributed funds both to WHO programmes for research and to technical cooperation. Guinea has sent a large number of technical staff to Mozambique, which in turn has passed on new findings in public health and planning to the other Portuguese-speaking countries of the Region. Mutual assistance has in any case always been a feature of the African tradition.

15.13 In order to channel and control all the new trends that are appearing at an ever faster pace, it has been necessary to establish and improve the machinery for consultation and collaboration with the Regional Committee, Member States and national technical staff. The subcommittees and working groups set up at the Regional level—the Regional Advisory Committee on Medical Research and the Regional panels of experts and expert committees—are engaged on this task. The increase in the number of nationals appointed as project leaders or project directors in their own countries is an indication of the extent to which nationals are becoming involved in collaboration with WHO. In two countries, national coordinators for WHO activities have replaced the WHO Representatives.

Region of the Americas

15.14 The rate of population increase in Latin America is about 2.9% per annum. Even though no rise in the rate of increase is expected in the coming years (a prediction based on projected decreases in general birth and death rates), by the year 2000 Latin America will have a population of approximately 650 million inhabitants, or double the present number. With this trend, it is to be assumed that in the coming years rural–urban migration will continue to increase periurban marginality, thus also increasing the health risks—unless, of course, there is a marked change in the socioeconomic and cultural situation at the rural level.

15.15 Countries are increasingly defining the existing situation and are becoming aware of the fact that, in order to find immediate solutions to their present and future health problems, it is necessary to improve coordination of all resources of the health sector ; increase the participation of related social and economic sectors ; and find a unified and balanced approach to international cooperation. This awareness is being reflected in a series of structural and functional changes both at the decision-making levels of the countries and in the administrative and executive organs of PAHO/WHO.

Extension of health service coverage

15.16 One essential activity in the overall programme is to extend health service coverage to the most deprived sectors in rural and periurban areas in order to provide health care to all. To this end, the approach of primary health care and community participation has been adopted. However, in order to accelerate the attainment of the desired goal, governments must acquire a better knowledge of the nature of problems of each specific national process and must adopt new strategies. The IV Special Meeting of Ministers of Health of the Americas (September 1977) was held to evaluate programmes and redefine strategies.

15.17 To strengthen community-based comprehensive health services, people need to be educated and motivated to utilize the services, and countries need to develop innovative approaches to bring about the effective participation and involvement of the community in the solution of its own problems. Strengthening of the health sector by the better use of available and potential resources, as well as proper coordination of the various institutions involved in health care, is another relevant action being taken by the governments of the Region.

15.18 As part of the community participation process, emphasis is being placed on

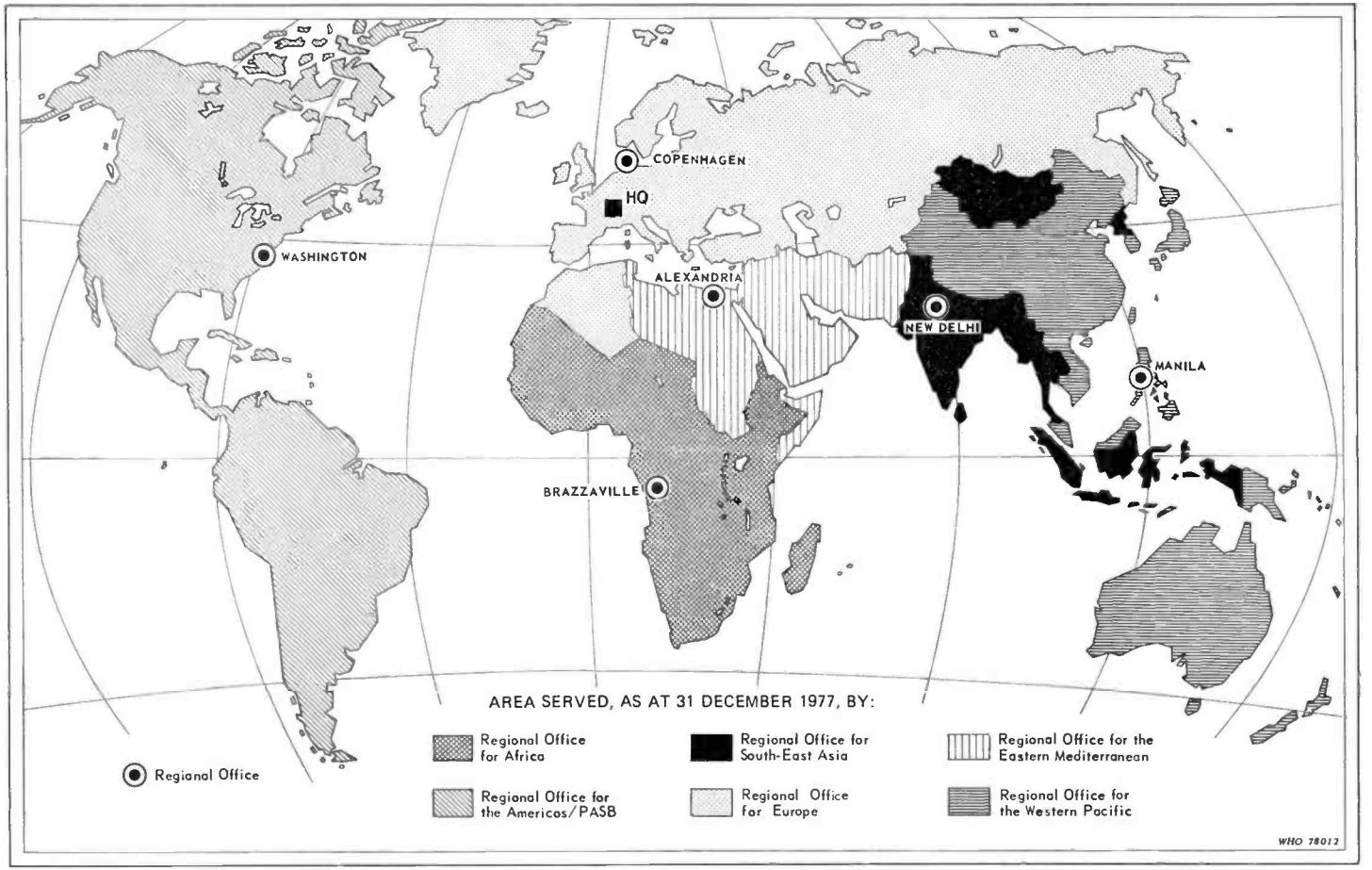


Fig. 15.1. Regional offices and the areas they serve.

the leadership role of adolescents and young people not only in achieving individual health and welfare but also in protecting community health. The role of women in health services is also being emphasized. Traditionally, women have played a stronger role in health programmes than in other development programmes, but generally at lower echelons of the health services. Their status and participation at decision-making levels should be improved.

Maternal and child health services

15.19 As the most vulnerable groups of the population, mothers and children should be given high priority in the formulation of national health plans and the PAHO/WHO technical cooperation programme.

15.20 Activities designed to control the risks associated with the processes of human reproduction, with the physical and psychosocial growth and development of children and young people and with their environment are urgently needed in order to protect the family group against adverse conditions that could lead to deterioration of the mental health of the family as a whole. At the same time, other social support activities—including those concerned with providing food, housing, recreation, vocational counselling and employment—must go hand in hand with health education, promotion of responsible parenthood, and a general family health counselling.

15.21 The activities the countries have been undertaking in this area, as well as the technical cooperation the Organization has given to them, should be intensified. Guidance is required on the use of appropriate technology, education, training of human resources and promotion of research, preferably applied research, in the field of family health. In this regard, the role of the multinational centres (the Latin American Center for Perinatology and Human Development, the Institute of Nutrition of Central America and Panama, and the Caribbean Food and Nutrition Institute) is crucial.

Disease prevention and control

15.22 The distribution and dynamics of the most prevalent diseases of the Region are wide and varied. The rate of infant mortality ranges from 15 to over 100 per 1000 live births, with the higher rates reflecting a higher frequency of preventable health problems. The proportion of deaths from cardiovascular diseases shows a range of 3.3–48.5%.

15.23 Enteric diseases, as a group, represent a serious health problem in Latin America and the Caribbean area. Of that group, the Region is increasingly concerned with infant gastroenteritis, which, together with respiratory tract diseases and malnutrition, continues to be one of the principal causes of death in the Americas. Even though it is clearly established that poor environmental conditions—such as lack of sewerage systems, inadequate water supply, proliferation of flies and other vectors, and poor personal and food hygiene—contribute to the spread and severity of the enteric diseases, a large research project is being undertaken to identify etiologies and the mechanism of transmission in infant gastroenteritis in the Caribbean, under the sponsorship of PAHO and the International Development Research Centre.

15.24 Within the context of extension of health service coverage to underserved populations, and as part of the Region's continued efforts to reduce morbidity and

mortality caused by diseases, especially in young children, the Organization will continue to implement the Expanded Programme on Immunization in the Americas (against poliomyelitis, diphtheria, whooping cough, tetanus, tuberculosis, and measles) on a permanent and systematic basis, with complete coverage at the community and family levels of all susceptible populations. The Organization, recognizing the importance of providing enough vaccine for the susceptible children, year after year, has developed a proposal for a revolving fund to assist countries in purchasing vaccines and vaccine-related material.

15.25 Because of the increased morbidity and mortality caused by cardiovascular, malignant and metabolic diseases, the Region continues to give particular attention to the risk factors that contribute to the pathogenicity of these diseases.

15.26 The Organization also works closely with health authorities in the Member countries in an effort to expand laboratory services and improve their efficiency.

15.27 Experience has shown that there is a need to continue introducing changes in the malaria control programme. After some success in the control of this disease, the programmes have stagnated in some countries and the epidemiological situation has deteriorated in some areas. Accordingly, the Organization must continue cooperating with countries in the testing of new strategies and methodologies and determining the most effective measures to be adopted in each particular circumstance.

Environmental health

15.28 PAHO's technical cooperation programme in environmental health continues to give priority attention to assisting countries of the Region to modernize and expand water supply and sanitation services, particularly in rural and marginal urban areas, and to creating or strengthening national institutions to manage the services. The resources of the Organization will be utilized to support the efforts of Member countries in framing national plans to meet the goals established at the United Nations conferences on human settlements (HABITAT) and on water; specifically, to provide water and sanitation facilities to as many people as possible during the decade 1980–90.

15.29 One of the strategies for attaining this goal is to integrate water supply and sanitation development projects as a component of primary health care. Another is for the countries and the Organization to develop new approaches to assure an increasing flow of national and international bilateral funds and better intergovernmental cooperation.

15.30 Large-scale river basin development projects planned in the Region of the Americas are expected to have a profound impact on human health. To assess any adverse impact on human health resulting from changing environmental conditions, the Pan American Center for Human Ecology and Health is playing an increasing role in cooperation with Member countries on these and other development projects.

15.31 Industrialization and urbanization are on the increase in the Region and so are air, water, and solid waste disposal problems. Member Governments are looking for guidance to enable them to develop realistic environmental health criteria and standards which are compatible with their plans for socioeconomic development, to strengthen existing monitoring systems

and to establish additional systems to measure pollution of the environment.

15.32 The Pan American Center for Sanitary Engineering and Environmental Sciences is intensifying its research activities to develop new technologies, as well as adapting and transferring appropriate technology, working closely with technical institutions at national, subregional, and regional levels. An integral part of this effort will be to assist countries in establishing their own information facilities as part of a regional network of collaborating centres for the exchange of information.

15.33 There are serious occupational health problems in the Region associated with injuries caused by industrial work and exposures to toxic substances, particularly among agricultural workers. Unfortunately, with present levels of funding, the Organization can only continue to provide limited assistance to governments in developing prevention and control programmes.

Development of human resources

15.34 The development of human resources is of fundamental importance to all parts of the health programme. Although work continues on all aspects of education and training in the health sciences, efforts must be especially directed towards the planning required if the goal of extension of coverage to all the populations that today do not benefit from health services is to become a reality.

15.35 In the course of providing technical cooperation to increase human resources for health, a new strategy was introduced which facilitates action at country level, comparison of the various projects, and ultimately a regional consensus based on experience. In line with this strategy, "project networks", involving institutions in several countries, whose work programme is adapted in each case to local conditions, have been taking shape. In each network, specific funds are available and mechanisms are set up for adequate coordination and periodic exchanges among those directly responsible for each project, thus facilitating cross-fertilization and increasing the potential for results.

15.36 Policy changes in the development and utilization of health manpower are prerequisites for the successful implementation of community-based health services. The health team approach must be used and the functions of each member must be clearly defined. The team leader, a physician in most cases, must understand the new concepts of patient and family care. In view of the shortage of professional health manpower, new categories of health workers may need to be introduced into the health system, such as nurse practitioners, physicians' assistants, community health aides, dental auxiliaries. Even the roles of the existing health workers may need to be expanded or changed. These changes will necessitate the development of innovative education and in-service training programmes as well as appropriate personnel management, supervision, and legislation policies. The first steps have been taken to expand the textbook programme to cover all health professions and also intermediate and auxiliary personnel.

15.37 In summary, the Region's strategy in the development of human resources is based on the comprehensive rationalization of the process of planning, training and utilization of human resources. Among the most important aspects are the promotion and development of mechanisms for coordination between service and teaching institutions; improvement of planning methodology; support of institutional and

programme development for the training of all levels of personnel; establishment of a regional network of biomedical information; production and provision of instructional material; and teacher training and educational research. Special emphasis is being given to the consolidation of national units linked to the Regional Library of Medicine and Health Sciences and the Latin American Centres for Educational Technology in Health, dealing with programmes in the area of medicine, nursing, and dentistry, and the training of technicians in all health fields.

Technical cooperation among developing countries

15.38 The increased emphasis on technical cooperation among developing countries constitutes a highlight in the work of the Organization. This approach is a significant step towards furthering the capabilities and skills of developing countries, and enhancing their individual and collective self-reliance. More and more the countries of Latin America and the Caribbean are coming to depend on each other. In view of the experience of technical cooperation among developing countries in the Region of the Americas, the Director-General chose the Regional Office for the Americas as the "focal point" within WHO for this activity.

Programming and evaluating PAHO/WHO technical cooperation

15.39 The new system for programming and evaluating PAHO/WHO technical cooperation exemplifies how the Organization is trying to meet the challenges presented by the rapidly increasing and changing demands in the field of health. This new system emphasizes the importance of the full participation of the governments at all stages of programming and evaluating PAHO technical cooperation in national programmes. It calls for an integrated programme of cooperation rather than fragmented projects of isolated activities; coordinates the components of the programming, budgeting, information, control, and evaluation processes; and is sufficiently flexible to adapt to the individual circumstances of each country while remaining compatible with the systems of WHO, the United Nations, and other external cooperation agencies.

15.40 When the Pan American Health Organization celebrated its 75th anniversary on 2 December 1977, it reaffirmed its belief that health is a "...universal right, and not a privilege to be enjoyed by the few".[1] With the strongest spirit of cooperation, it will continue to strive towards the goal of bringing to every man, woman, and child the benefits of basic health services.

South-East Asia Region

15.41 A remarkable achievement during the period 1976–77 was the eradication of smallpox from three countries in the Region. With the expected declaration of a similar status in respect of two more countries, it is hoped that the curtain can be pulled down on this disease, which has killed or maimed hundreds of thousands of people in the Region over the centuries.

15.42 The conquest of smallpox symbolizes a new upsurge of hope and aspiration among the people for better health, and a renewed resolve and manifest will on the part of the governments to provide it.

[1] Pan American Health Organization. *Ten-year health plan for the Americas.* Washington, DC, 1973 (Official Document No. 118), p. 4.

15.43 Health is now accepted by governments in the Region as an intersectoral concern that depends on overall socioeconomic development. Conversely, there can be little economic productivity in a population with a low state of health. In this context, the development of country health programming is of great relevance. Wherever it has been undertaken in the Region, such programming has not only resulted in a better mobilization of resources to meet priority health problems but has also provided a more purposeful direction to the coordinating and collaborative efforts of WHO.

Strengthening of health services

15.44 The concept of primary health care has been widely accepted in the Region and the programmes in this field have been making headway in all countries. Burma, Nepal and Thailand have formulated projects as an outcome of country health programming ; in Indonesia the primary health care programme has been developed in collaboration with UNICEF as an intersectoral activity. The potential role of voluntary health workers, including traditional medical practitioners, in this important area is being examined in some countries. The crucial issue of the preparation of voluntary health workers, as well as the formulation of manuals and handbooks, is being pursued. Programmes for the promotion of traditional medicine are being taken up, including the research, training and service aspects as a composite package. One important development in primary health care is the close attention given to health service research, which has been identified as a priority area by the Regional Advisory Committee on Medical Research.

15.45 All the countries in the Region are giving priority to the integrated development of the infrastructure of health services with stress on base-institutions such as district or township hospitals as supporting units for primary health care. The base-institutions are being used not only for providing professional leadership in planning the programme but also as a training base and for logistic support to the primary health care worker.

15.46 In the field of medical care, the general trend is to train the health worker so that he can render basic, primary medical care adequately and safely. In some countries, for example in the Democratic People's Republic of Korea and in Mongolia, the institution of specialized medical care services at the community level is noteworthy. An important Regional programme concerns rehabilitation, in which the emphasis is on preventing disability and involving the community. This programme has been accepted in many countries as an integral part of the general health services.

15.47 Countries with national policies in family planning continued their efforts to reduce the problem of uncontrolled fertility with a view to improving the health of mothers and children. WHO's collaborative programme, mainly funded by UNFPA, supported these efforts.

15.48 Support has also been given for building up the national training base and service facilities for the medical termination of pregnancy programme in India ; for the basic and in-service training and education of various categories of health workers, including traditional practitioners, in Sri Lanka ; and to research on family planning through the WHO Special Programme of Research, Development and Research Training in Human Reproduction, in India, Indonesia and Thailand.

15.49 Collaborative studies on perinatal mortality and morbidity and the incidence

of low birthweight have continued in three countries of the Region, the intention being to produce accurate information on the pattern of pregnancy and its outcome and on the extent of the problem. During the period under review, an interdisciplinary group evaluated the work done on neonatology in the Region in recent years and finalized guidelines for the future.

15.50 Recognizing the fact that a reduction in infant and child mortality and morbidity rates is absolutely necessary for improving the quality of life of the people, the Regional Committee recommended that special attention be given to the problems of child health. Accordingly, a Regional programme on child health has been prepared and is under consideration by governments.

15.51 With governments now including school health in their health plans, programmes in this field have received a greater impetus. Collaborative efforts were directed towards expanding the training of elementary schoolteachers, strengthening school health teams and providing in-service training for all categories of workers involved in the school health programme.

15.52 An essential element in the promotion of maternal and child care in the Region has been WHO's collaboration in providing proper training and education in this field. The most significant developments in this regard have been in the community-oriented undergraduate teaching programmes in child health for medical colleges in Bangladesh and India.

15.53 In nutrition, even though the direct input from WHO has been limited, the Organization's technical leadership in this field is being recognized by the countries of the Region as well as by the United Nations and other agencies. It is encouraging to report that WHO's support to and participation in various missions, studies and project formulations concerning nutrition undertaken by UNICEF, WFP, FAO and IBRD have been on the increase. As a follow-up of the recommendations of the Technical Discussions held during the twenty-ninth session of the Regional Committee, an intercountry meeting on the organization and delivery of nutrition activities in the health sector was organized at the Regional Office in November 1977.

15.54 The Regional Advisory Committee on Medical Research, set up in January 1976, has held three meetings and has identified the priority areas for research in the Region as being: communicable diseases, nutrition, control of human fertility, environmental health, delivery of health services, and a miscellaneous group which includes chronic liver diseases and liver cancer. Study groups have been set up to develop detailed research protocols in these fields.

15.55 In order that more realistic priorities for research could be set and a still better organization of research in Member countries instituted, a regional research programme was being formulated, based on reviews of national research which could benefit from the WHO Special Programme for Research and Training in Tropical Diseases.

15.56 The regionalization of WHO's research programme has created a greater awareness of the need to solve urgent problems, both among Member States and among their scientists.

Health manpower development

15.57 A crucial factor in improving the coverage and quality of health services is

the availability of enough health personnel with community-oriented training. The Regional Office has therefore given high priority to collaboration with Member countries in order to encourage them to reorient the training of health manpower so as to respond to the community's needs. Need-based and task-oriented training programmes have been undertaken to develop health teams consisting of appropriate health personnel, including new categories of basic health workers, in order to provide community-oriented primary health care. A three-tier system of manpower, with emphasis on local and intermediate levels, has been evolved by most countries. The Organization has collaborated in developing suitable curricula, teaching and learning materials, manuals and procedures, and has also provided subsidies for organizing the training programmes.

15.58 The Regional Office surveyed training programmes in various countries and the job descriptions of various multipurpose primary health care workers; it also developed guidelines for evaluating these programmes. In addition, the Organization collaborated with some countries in the training and use of voluntary/community health workers and organized a meeting to discuss the functions and utilization of such workers. Information on traditional systems of medicine and the practitioners of such systems was collected, and an intercountry seminar discussed their utilization in primary health care.

15.59 With the aim of providing supervisory links between multipurpose and voluntary health workers and primary health centres, countries have been assisted in the training of middle-level workers (health assistants or medical assistants). An intercountry seminar was organized to define the roles of such personnel.

15.60 An intercountry seminar on medical education suitable for developing countries led to the development of a suggested curriculum for training in community medicine. Various steps have also been taken towards attaining regional self-sufficiency in postgraduate and specialized training programmes, and governments have been encouraged to determine carefully the areas and disciplines in which such training should be developed. In the award of fellowships emphasis is being laid on training within the Region; in 1977, 37% of the fellowships awarded by the Regional Office were for studies within the Region.

15.61 In health statistics, three elements can be identified as contributing to a shift in emphasis in the assistance provided to countries in the Region. These are (i) the increasing participation of statisticians as members of multidisciplinary projects rather than in projects of vital and health statistics *per se*; (ii) a conscious effort to clarify, in relation to practical application, the concept of health information systems *vis-à-vis* traditional health statistical activities, and (iii) attempts to bring an element of realism to the collection of information in situations where medically qualified personnel are not available in adequate numbers.

15.62 Thus statisticians have helped in such projects as country health programming, research on communicable disease epidemiology, development of protocols for surveying selected health problems in rural areas, and the development of field projects for the study of infant and early childhood mortalities.

15.63 A working group on lay reporting of morbidity and mortality statistics drew up, for use by nonmedical personnel, a detailed list of "symptom associations and conditions", and two minimal lists, one for

reporting causes of death and the second for reporting "reasons for contact with health services". Field trials to test these lists are in progress in Burma, Sri Lanka and Thailand and some initial steps have also been taken in India.

Disease prevention and control

15.64 Communicable diseases continue to cause major public health problems in the Region. The main constraints in controlling these diseases are poor environmental conditions and low coverage by the health services. Most of the disease control programmes were organized as vertical campaigns, but the present trend is to integrate these programmes. First, such programmes as those against leprosy and tuberculosis can be combined into one programme for the control of mycobacterial diseases. Similarly programmes for the control of vector-borne diseases can be combined according to their modes of transmission. Secondly the ultimate goal is to have an integrated health service taking care of all these diseases.

15.65 The interregional WHO Vector and Rodent Control Research Unit in Jakarta and Semarang has its own research programme, and collaborates in field activities for the control of malaria, filariasis, dengue, and Japanese encephalitis.

15.66 The Rodent Control Demonstration Unit in Rangoon is engaged, in cooperation with the national authorities, in the control of flea-bearing rodents in Burma, in relation to endemic plague.

15.67 Countries of the Region have been trying to strengthen their epidemiological surveillance for more than a decade. Epidemiological units and divisions have been established in ministries of health but the number of diseases under surveillance and the accuracy of the data are not yet satisfactory. By making epidemiological surveillance a responsibility of the health information system governments hope to improve surveillance. WHO is assisting in the training of personnel and in providing the necessary technical inputs.

15.68 Programmes against leprosy and tuberculosis, which are both major public health problems in most of the countries, have not yet been effective, mainly on account of the low coverage of the population by immunization in the case of tuberculosis and case-finding and case-holding in the case of both diseases. There is also the emerging problem of resistance of *Mycobacterium leprae* to drugs. Research into the chemotherapy and epidemiology of these diseases is planned or is underway in some countries.

15.69 In regard to gastroenteritis, which is a major killer of children, the countries of the Region are increasing the availability of oral rehydration therapy in the rural areas. Some operational research is planned to find out the most effective means of distribution of oral rehydration electrolytes.

15.70 Cholera has been reported from Bangladesh, Nepal and Sri Lanka, while Burma is the only country in the Region which is still reporting human plague. In other countries such as India and Indonesia sylvatic plague foci exist.

15.71 The problem of sexually transmitted diseases appears to be increasing. In places where surveillance has been good, such as Sri Lanka, this trend has been evident. In recent years there has been increasing awareness among governments of the seriousness of the problem, and some countries have developed control programmes in collaboration with WHO.

15.72 The extent and effectiveness of immunization programmes in the different countries of the Region is varied. In one country there is an efficient national immunization programme covering tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis, measles and meningococcal meningitis, and its results have been very good. But in other countries, immunization against only three or four of these diseases has been introduced and the coverage is not yet satisfactory, often reaching, except in the case of smallpox, only a relatively small proportion of children in limited urban areas.

15.73 The Expanded Programme on Immunization was accorded high priority in the Region after the successful conclusion of the smallpox eradication programme in almost all countries.

15.74 Intensive smallpox surveillance was carried out during 1976 in Bangladesh, Bhutan, India and Nepal. In April 1977 an international commission certified the smallpox-free status of Bhutan, India and Nepal. Bangladesh continued country-wide surveillance throughout 1977. Burma had its last smallpox case in 1969. An international commission assessed the programme in Bangladesh and Burma in November-December 1977 and certified both countries as smallpox-free. So as to be prepared for any unforeseen recurrence of smallpox, 50 million doses of freeze-dried vaccine will be preserved at the Regional Office cold store, as from 1978.

15.75 The overall malaria situation in the Region continues to be serious, but the increased national commitments to controlling the disease have generated substantial additional assistance from bilateral sources, improving the medium-term prospects of antimalaria programmes. There was a further reduction in the number of microscopically diagnosed cases in Indonesia (Java and Bali), Maldives, Nepal and Sri Lanka. Though the relative prevalence of *Plasmodium falciparum* has decreased in some countries, chloroquine-resistant falciparum malaria spread to areas with populations totalling nearly 45 million, and further areas with populations totalling about 90 million are at risk. The problem of vector resistance to DDT is also increasing, so that regular and careful monitoring of the susceptibility of vectors to insecticides assumes greater importance. Efforts are being continued to retrain personnel and to promote the local production of antimalaria drugs.

15.76 Filariasis remains a public health problem in many countries, and control activities have not produced any noticeable impact. The difficulty has been in understanding the epidemiology of the disease. India is studying the impact on the epidemiology of the disease of filaricidal drugs administered to a whole community through their salt supplies. Kala azar (visceral leishmaniasis) has re-emerged in India in the northern districts of Bihar State after a lapse of some ten years. WHO is collaborating with the Government of India in ensuring supplies of appropriate drugs. There is a possibility that neighbouring countries which have similar ecological conditions, such as Bangladesh and Nepal, might also become affected.

15.77 The training of public health veterinarians continues but otherwise the programme has not been very effective in the Region. Only a few countries have followed recommendations to establish veterinary public health units in their ministries of health.

15.78 In the programme for the development of health laboratory services the main emphasis is on the training of lab-

oratory manpower, the establishment of certain specialized laboratories, quality control, and standardization of procedures. In Thailand, work on the construction of the National Breeding Centre for Laboratory Animals began at Mahidol University, Bangkok. The Centre is expected to be ready in 1979. In India, the Virus Research Centre has started a two-week course on the breeding of mice, and a colony of Chinese hamsters is now established at the animal facility of the Central Drug Research Institute, Lucknow.

15.79 The prevention of blindness is being dealt with in several Member States through national committees which are formulating eye health policies and planning national strategies. This has resulted in better coordination at the national level and greater collaboration with international and nongovernmental agencies. WHO is providing direct technical cooperation in these programmes, in which health education receives priority attention.

15.80 Cancer is an emerging problem in the countries of the Region, in some of which a comprehensive cancer control programme has been formulated as an integral part of the existing public health services, with WHO collaboration.

15.81 Chronic liver diseases (including liver cancer) have been identified by the Regional Advisory Committee on Medical Research as a public health problem in the Region and a project of retrospective and prospective research on these conditions has been formulated in which almost all the countries are collaborating.

15.82 Cardiovascular diseases are also becoming a problem of major public health importance in the Region. Some countries are planning institutes for training specialists and developing cardiovascular services. Sri Lanka is beginning to study the epidemiology of cardiovascular diseases. A collaborative investigation on peripheral occlusive vascular disorders in India and Nepal is planned.

15.83 In the field of radiation health, WHO has continued to assist with national personnel film badge services in most countries, and in planning radiology, radiotherapy, radiological physics and nuclear medicine services in India. In collaboration with IAEA, the possibilities for using nuclear techniques in epidemiological investigations were explored. Self-reliance in the repair and maintenance of nuclear and electro-medical equipment in hospitals is also being promoted jointly with IAEA.

15.84 Countries of the South-East Asia Region are becoming more interested in the integration of mental health activities with the general health services. Orientation and training in mental health for all categories of health personnel continued in projects in Bangladesh, India, Indonesia and Thailand. Psychiatry has now been included in the medical curriculum in all countries of the Region; nevertheless there remains a paucity of trained psychiatrists and teaching personnel. The Department of Psychiatry at the Postgraduate Institute of Medical Education and Research, Chandigarh (India), was designated as a WHO Collaborating Centre for Research and Training in Mental Health in 1977. UNFDAC projects in Thailand and Burma are paying increasing attention to the epidemiology of drug addiction and the evaluation of treatment regimes and methods.

Environmental health

15.85 In the field of environmental health, water supply and excreta disposal have remained the main areas of activity and will continue to be so for years to

come, since water and filth-borne diseases are still major public health problems in South-East Asia. Interest among governments is growing and they are making all possible efforts, with the available national and international and bilateral resources, to extend their programmes in order to achieve the national targets recommended by the World Health Assembly for the Second United Nations Development Decade, 1971–80. WHO is increasingly cooperating in the planning and implementation of these programmes.

15.86 WHO's collaboration with Member States in attracting investment funds is being intensified, through project feasibility studies and pre-investment planning as well as through sector studies under the IBRD/WHO Cooperative Programme.

15.87 The Organization's activities are also increasing in areas such as environmental pollution control, environmental planning, pre-investment studies and environmental health information systems, to support the important recommendations of HABITAT, the United Nations Conference on Human Settlements.

15.88 Current studies on the use of appropriate technology in environmental health at the village level, especially for water supply and wastes disposal, are expected to make these environmental health efforts more relevant to the social, cultural, economic and environmental conditions of the communities in the Region.

15.89 In the South-East Asia Region, extrabudgetary resources for health and related sectors come mainly from bodies within the United Nations system, particularly UNDP and UNFPA. Although the financial crisis in UNDP continued to affect programmes and projects, it has been possible in 1977 to provide more funds from UNDP sources than in the previous years.

15.90 The multisectoral and integrated approach to the solution of health problems, coupled with judicious forward planning and closer coordination at country level, has led to the formulation of projects effective enough to attract more funds and also to improved utilization of budgetary provisions.

European Region

General programme development

15.91 In accordance with the general WHO policy of Member States ultimately becoming self-reliant, the European Regional Office withdrew the WHO Representative in Algeria at the end of 1976, while 1977 saw the closure of the office of the last WHO Representative in the Region—in Turkey. With the gradual phasing out of this type of WHO representation in the countries of the Region, the direct dialogue with the governments of the Member countries has been intensified through meetings in the country involved or at the Regional Office. This system ensures fruitful discussions with government officials on the development of programmes in the individual countries.

15.92 Another new feature in the implementation of the Region's programme is the increased involvement of members of the Regional Committee in the development of the intercountry programme. In 1976, no fewer than seven groups of such members met to advise on programme planning in their specific fields. In March 1977, a consultative group on programme development reviewed trends and policies in the European Region as a basis for the development of the future programme and

for increased collaboration with national institutes and agencies. The group stressed that, although it is agreed that the greatest health needs are in the developing world, health authorities in Europe also face urgent health-related problems; that solutions to these will eventually benefit the developing world as well; that in setting priorities for the European Region, the relevance to developing countries of the solution to a problem, actual or potential, should be carefully considered. The group endorsed the continuation of the medium-term programmes being implemented by the Regional Office. Based on its discussions, the areas proposed for funding in 1978–79 from the Regional Director's Development Programme are: research promotion and development; the prevention of road traffic accidents and the health care of the elderly (programmes for which the Regional Office has global responsibility); appropriate technology for health; national drug policies and management; and urgent and unpredictable health problems.

15.93 The Regional Advisory Committee for Medical Research met in February 1977 and established five main priority areas for study, and planning groups have been established on the research priorities as well as on information systems for medical research.

15.94 With the advent of German as the fourth working language in the European Region, it proved necessary to convene a meeting to establish a basic terminology list with German equivalents for public health and administrative terminology in use in WHO.

Strengthening of health services

15.95 In Europe, a variety of types of system for the delivery of medical care have emerged and are developing: national health services, sickness insurance schemes, and private medical practice. Through each of these systems efforts are made to formulate criteria for assessing the health status of a population and the impact on health of medical institutions, to raise management standards and to make use of experimental models, systems analysis and operational research.

15.96 There is now widespread acceptance of the strategy of using pilot areas for research purposes and encouraging different institutions to collaborate with WHO in carrying out international research. A study has been made of health planning in eight European countries with different systems of health care, in order to provide insight into the various approaches used, and a separate study was made of the system applied in the Gabrovo district in Bulgaria.

15.97 The training programmes for senior health planners in the European Region have been revised so as to stress active student participation. The new model was used with success for the courses in 1976 and 1977. The need for improving management (planning and evaluation included) at all levels of the health services is becoming increasingly evident in the countries of the Region. A working group studied the educational needs of managers in the health services; emphasis was placed on the need to give such training to middle-level medical and nursing management staff.

15.98 There is general concern about the rising cost of health care without a commensurate rise in health benefits, and it is necessary to strengthen the capacity of national health administrations in health economics. A recent working group contributed to a better understanding of the

role of health economics in national health planning and policy-making. A study has been undertaken on consumers' responsibility for, and participation in, the planning of medical care delivery.

Health care of the elderly

15.99 Following the Director-General's decision in 1976 to transfer to the European Region the responsibility for developing a global programme for the health care of the elderly, the Regional Committee for Europe in 1977 accepted the detailed programme and agreed to the establishment of a Regional consultative group, to regular liaison meetings not only with governmental and nongovernmental organizations but also with interregional liaison groups, and to regular meetings of directors of national institutes of gerontology, two of which have already been held, in Copenhagen and in Bethesda, USA. Further, a research planning group has been established as part of the European programme in biomedical and health services research.

15.100 By the end of 1977, a detailed search of population-based epidemiological studies for Europe had been completed; it will be expanded to cover the global situation. Related activities within other Regional programmes have included the preparation of a detailed protocol for an epidemiological study to be undertaken by a series of national institutes; a working group on nursing aspects of the care of the elderly; and study of the nutritional needs of the elderly.

Road traffic accidents

15.101 Special consideration is also being given to the development of another worldwide programme for which the Director-General transferred the responsibility to the Regional Office in June 1976, the programme on the prevention of road traffic accidents. The Regional Committee for Europe, at its twenty-sixth session, approved the establishment of a Regional consultative group, which met to advise on the development of the medium-term programme; a liaison meeting was held, in December 1976, with representatives of a large number of intergovernmental and nongovernmental organizations. The need to increase collaboration and improve coordination at the international level was strongly felt; a meeting with representatives from other regional offices was also convened, and a plan of action was established which identified the responsibility of each WHO region. The project manager of the programme visited three of the other regional offices.

15.102 A technical advisory committee was convened at which participating experts and representatives from road safety institutes discussed the activities to be implemented within the programme and the designation of *ad hoc* technical groups for specific problems. Close contact and collaboration have been maintained with other intergovernmental organizations, especially the Organisation for Economic Cooperation and Development and the ECE.

Health laboratory services

15.103 The role of the laboratory in the prevention and control of hospital-acquired infections was discussed by a working group in 1976 which developed guidelines to fill the gap existing in the field of hospital infections, by outlining the role of laboratory services as the common link between the hospital administrations,

the surveillance and control programmes and the continuing education of the staff.

Family health

15.104 The relationship between children and the environment in which they grow up (including the social dimension) forms the theme of a series of meetings on problems of children of school age, which will culminate in 1978 in the Conference on the Child and Adolescent in Society.

15.105 A contractual agreement has been drawn up with the International Children's Centre for the preparation of documentation on family health and family planning for use in developing countries in the Region, especially those where projects are supported by UNFPA.

15.106 In such countries, primary health care became the national entry point for the development of family planning programmes. To overcome the scarcity of human resources in the field, there have been extensive training activities for multidisciplinary teams of health and social personnel working in family health/family planning programmes and the decentralization of such training from intercountry to country level has been achieved.

15.107 During a meeting on the role of nutrition in public health, convened in 1976, it became clear that the main characteristics in the field of nutrition in most countries in Europe are: an increase in the deleterious effects on health and on physical and mental development of overnutrition; an increase in the use of ready-made foods and collective feeding; and the realization that social, medical and psychological factors have much more influence in producing unfavourable nutrition habits in the elderly than purely financial factors or the availability of food.

15.108 The problem areas in health education remain the inadequate integration of health education in public health services; the absence of a scientific evaluation of health education measures; and the lack of training facilities in health education. To tackle these problems an advisory committee on health education and social sciences was convened in 1976 and working groups were organized in 1976 and 1977 to consider, respectively, the place of health education in health administrations and the principles and methods of health education.

Health manpower development

15.109 The Region's medium-term health manpower development programme was reviewed by a steering committee in April 1976. The programme was modified and now has three subprogrammes—for continuing education, for teacher training, and for strengthening communication and collaboration between health and education authorities and among various types of health worker. Within each of the three subprogrammes a number of activities, including several studies and working groups, took place in 1976–77.

15.110 The impact of such activities at national level depends largely on the educational policies and commitments of Member States. A flexible approach within the framework of the medium-term programme might best respond to the needs expressed by countries in the Region. If the programme is to remain realistic and country-oriented, information on health manpower development will play an increasingly important role. Much of the information needed is already available in the capacity study on graduate medical education in the European Region, and in the inventory of teacher training centres,

both of which are on-going activities. These, together with the assessment of care patterns, and of examination patterns, assumed even greater significance when, on 1 July 1976, the Commission of the European Communities agreed that there should be free movement of physicians within the Communities as from 1 January 1977.

Nursing

15.111 The renewed interest in nursing/midwifery confirms the timeliness of the introduction in 1976 of the European medium-term programme in nursing/midwifery and of the Regional Committee's Technical Discussions in September 1976 on the role of nursing staff in the health field in the 1980s. The programme, which is scheduled to run until the end of 1983, has gathered momentum over the first two years in collaboration with national groups and individual experts. It is composed of four major components—the nursing process, organization and management of nursing/midwifery services, education of nursing/midwifery personnel, and resource planning. Participating centres will be designated throughout the Region ; eleven countries have already formally expressed their interest in providing such centres. Management and technical advisory groups of nationals have been organized and close liaison has been developed with professional nursing organizations in Europe. Preliminary studies and the collection of essential information have been carried out and a workbook on the nursing process has been prepared.

15.112 The nursing component of other programmes in the Region, e.g., mental health, community health, health manpower development, has been enlarged and strengthened through greater use of nurse consultants and the inclusion of nurses in working groups and other types of meetings.

Communicable disease prevention and control

15.113 Though communicable diseases are not a major public health problem in the European Region, international travel and the trade in food and animal feeds continued to cause a fairly large number of minor outbreaks, mostly of enteric infections of bacterial and viral origin. The recommendations of the 1976 working group on aviation catering have been very well accepted and some European air-service companies have already included them in the instructions to their catering personnel. Sexually transmitted diseases were discussed at a symposium in 1976, which resulted in the preparation of a manual for general practitioners on the management of these diseases. The economic aspects of communicable diseases were considered at two meetings during the period, those of viral hepatitis at a meeting in 1976, and sexually transmitted diseases in 1977.

15.114 In 1977, the malaria epidemic in the south-eastern part of Turkey had become so serious as to justify emergency relief operations, with financial support from the Director-General's development programme and other sources.

Noncommunicable disease prevention and control

15.115 The second phase of the Region's long-term programme on cardiovascular diseases culminated in the establishment of a number of pilot areas for comprehensive community control. Although it is far from being a breakthrough in the community-oriented approach for the control of cardiovascular diseases—in

contrast to the individual or selected-group-oriented approach—this development does nevertheless indicate the growing involvement of cardiologists and public health administrators in such activities.

15.116 In the field of primary prevention of cardiovascular diseases, the results of a number of studies corroborated the theory of preventability. Evidence is slowly accumulating on the intricate interrelation of environmental, genetic and behavioural factors in the causation of various chronic diseases, smoking being the best example.

15.117 Mortality due to cardiovascular diseases, and especially ischaemic heart disease, continued to decrease or level off in the countries with the highest mortality rates. Of special interest is the project in North Karelia, Finland, where systematic health education has led to changes in lifestyle, with a considerable resultant decrease in mortality due to cardiovascular diseases.

15.118 The trend in most European Member States towards community-oriented delivery of mental health care continues ; it is agreed that there is a need to develop and extend the range and quality of mental health care, social welfare and other community services.

15.119 Information collected on mental health services in pilot areas in some European countries would indicate that about 20% of the population may have recourse to mental health services in the course of a lifetime and that every third hospital bed in the European Region is used for a patient suffering from a mental disorder. Yet many European countries do not adequately formulate the mental health component in their national health policy and there is still a lack of adequate tools for the monitoring and management of mental health care.

15.120 There is general recognition that increased efforts in primary prevention are needed ; emphasis is being placed on mental health education, particularly in the younger age groups, taking into account the psychosocial factors and paying special attention to the abuse of drugs and alcohol.

Promotion of environmental health

15.121 Pre-investment studies have been carried out in several countries of the Region, in order to attract external financing for water supply and wastes disposal projects. These activities have resulted in IBRD investment in water supply projects in Algeria, Morocco and Portugal.

15.122 A consultation in 1976 on environmental health aspects of human settlements in Europe recommended a programme of activities for housing hygiene and public health aspects of town and regional planning ; another, on basic sanitation problems of European communities, recommended a programme for water supply and community wastes disposal, and for the training of sanitarians and operators. A proposal for a medium-term intercountry programme on basic sanitation in Europe has now been designed.

15.123 In 1976, a consultation reviewed the results of a survey of regional manpower requirements in environmental health as a basis for evaluating current training programmes and preparing new ones. The group recommended the preparation of a guide for environmental health manpower planners, to assist Member States in designing their training

programmes at various levels in order to produce the required type and number of personnel to meet their manpower needs.

15.124 As part of the European medium-term programme on environmental pollution control a *Manual on Urban Air Quality Management* was published in 1976 as No. 1 in the new *WHO Regional Publications, European Series*. Meanwhile, preparations have started for the publication of a complementary volume dealing with air pollutants from industrial sources. Glossaries of air pollution, water pollution and solid waste management terms will be published in 1978–79.

15.125 In 1976 a working group discussed the intake by man of minute contaminants from water and food. Following its recommendations, studies and meetings in 1977 concentrated on the health hazards from chlorination and ozonation derivatives in the treatment of drinking-water and the possible health-related problems from the use of desalinated and demineralized drinking-water.

15.126 Interlaboratory comparisons of water pollution analyses were continued with the collaboration of over 30 national laboratories in about 20 European countries, and of IAEA (for radiochemical water samples). The results of a study on the eutrophication of natural lakes were issued in 1976.

15.127 As part of the comprehensive UNEP-supported activities in the Mediterranean, two projects, executed by the Regional Office for Europe in cooperation with the Regional Office for the Eastern Mediterranean, started in 1976, one dealing with sanitary surveillance of beaches and coastal water, the other with an inventory of land-based sources of pollution. Eighteen Mediterranean countries, and also other international organizations, are taking part in this programme.

15.128 Two European projects for UNEP's Global Environmental Monitoring System, in the fields of air pollution and water pollution respectively, were established in 1976, and a preliminary survey of the networks in the European Member countries was prepared in 1977.

15.129 The environmental pollution control programme was analysed at a consultation in September 1977 with a view to emphasizing the problems and future trends and proposing priorities for future activities in the industrial and urbanized European Region with its special and growing problems, among which are the increasing number of toxic chemical substances being introduced in industrial production and contributing to pollution of air and water and of the products used by the general population.

Prophylactic, diagnostic and therapeutic substances

15.130 The series of annual symposia on clinical pharmacological evaluation in drug control, which began in 1972, continued. Two symposia were arranged during the biennium to evaluate individual drug categories such as antihypertensives, antirheumatics, antidepressants, contraceptives and drugs used to combat coronary heart disease.

15.131 So far, the development of clinical pharmacological units has mostly been limited to large university hospitals, with a resulting selective coverage of the population. A working group convened in April 1977 defined the functions of clinical pharmacological services in a much wider context and highlighted the role of

clinical pharmacologists in the development of drug monitoring programmes, drug use studies and special teaching programmes for the hospital team and the general practitioner.

15.132 A working group on bacterial vaccine production and control, convened in 1977, dealt with new and more rational methods of vaccine production and with collaboration in control procedures.

Eastern Mediterranean Region

15.133 The expansion of comprehensive national health services is one of WHO's main areas of collaboration with governments, and it is normally a very lengthy process. In substantial parts of the Eastern Mediterranean Region, however, economic events have taken a fortunate turn in the past few years, and economic development has raced along at an unparalleled pace. This has given impetus to the development of health services in the Region.

15.134 Iran, Kuwait, Libyan Arab Jamahiriya, Qatar, Saudi Arabia and the United Arab Emirates have, over and above their normal contributions to WHO, curtailed their own demands on the WHO budget so that activities in other countries of the Region can be expanded. The generous financial support given by the more economically favoured to the less fortunate of the Region's Member countries is an indication of the prevailing spirit of collaboration. Mutual assistance and technical cooperation continue to characterize intercountry relations in the Region.

15.135 In each of the countries, rich and poor alike, there has been rapid social development, as well as substantial changes in the patterns of diseases, and a major improvement in the resources available for health. In addition, coordination of the work of the United Nations and intergovernmental, nongovernmental and bilateral agencies has notably increased and there is a definite trend for these agencies to combine forces in a multidisciplinary approach to the solution of health problems.

15.136 Most of the countries of the Region have now prepared national health plans which aim at extending health services to all sections of the population. Consequently, there is a greater desire to develop intersectoral activities and planning for socioeconomic development, while this in turn will benefit from the development and strengthening of health services and administration with WHO's collaboration over the past twenty-eight years.

Primary health care

15.137 The concepts of country health programming and primary health care have been accepted by many countries in the Region, and WHO has assisted the Governments of Afghanistan, Pakistan, Sudan and Yemen in preparing country health programmes which lean strongly towards promotion of primary health care. Country health programming is planned for 1978 in Democratic Yemen, Iraq and Somalia, while in Afghanistan and Yemen it was used as a basis for the preparation of national health plans. It was also useful in the structural and functional reorganization of the Ministry of Health in Yemen.

15.138 In order to promote the concept of primary health care in the countries of the Region and the development of intersectoral coordination so that governments are able to provide, with the resources available, better health services

for all people, an inter-agency consultation was held at the Regional Office in October 1977 and a seminar is planned to take place early in 1978. These meetings should make useful contributions to the International Conference on Primary Health Care which will be held in Alma-Ata, USSR, in September 1978.

15.139 The concept of appropriate health technology is also being promoted, in order to assist governments further in developing self-reliance and to reduce the cost of health services. Countries are being encouraged to use simpler technologies to meet their health and other social development needs, particularly for rural areas.

15.140 The task of providing full health care to rural peoples is an enormous one, and the importance of the proper training and utilization of nursing personnel in this regard is paramount. In the countries of the Eastern Mediterranean Region, nurses form the largest single category of health personnel. They are indispensable to the successful functioning of the health services system.

Health manpower development

15.141 WHO maintains its belief that one of the best investments for its funds and effort in this Region is in the training of health workers. This training should be such as to ensure that those trained will merge effectively into the evolving health services system. To this end, the Regional fellowships programme is making an important contribution (in 1976 over 600 fellowships were awarded). Since this programme began in 1949, almost 10 000 individuals working in the health field at professional and other levels have been exposed to new ideas and new knowledge. They have returned from neighbouring countries, from countries outside the Region, and more recently from recognized post-basic and postgraduate training institutions within the Region, to dedicate themselves to meeting the health needs of their own people.

15.142 The overall thrust of the programme in health manpower development has always been and remains in the direction of institutional development in general, and teacher training has constituted an important element. As a result, not only has the Region witnessed a remarkable increase in the actual number of professional schools, but to an increasing extent these schools are now preparing the types of health personnel which the countries most need. The Regional Office has found it possible to provide fewer long-term field staff and to make greater use of well-trained national talent in WHO-assisted projects. It is probable that within a few years the only international staff to be assigned to countries will be short-term experts in highly specialized fields in which the countries may not yet have developed the necessary expertise.

15.143 The Organization continues to promote the concept of integrated health services and manpower development. In response to a decision of the 1976 session of Sub-Committee A of the Regional Committee, a Ministerial Consultation on Health Services and Manpower Development is due to be held in Teheran early in 1978. The Consultation will represent an important step in the preparation of a comprehensive policy for the integrated promotion of health services and manpower development for each of the Region's Member States.

Family health

15.144 Closely related to the development of primary health care services is the

family health programme, with special emphasis on remote rural areas. The active involvement of the population requires that activities in maternal and child health, family planning, nutrition and health education should be integrated into this programme. Specific objectives are set in accordance with national policies, using the criteria of maternal, child, and family health and sometimes including social, economic and demographic criteria as well. In planning the health component of multisectoral food and nutrition policies and programmes, the aim is to attack the root causes of malnutrition and improve nutritional standards. Food supply problems require the formulation and implementation of national food and nutrition policies ; in cooperation with UNICEF and FAO, advisory assistance is being provided by WHO in several countries to develop such policies.

15.145 Children make up a very high proportion of the underserved populations of the Region. More than two million children under the age of three years die in the Region each year, and of these deaths about a quarter of a million are caused by six diseases preventable by immunization, while at least half a million are caused by diarrhoeal diseases. In 1976 and 1977, intensified immunization programmes were launched ; and since 1973, WHO and UNICEF have joined in the development and testing of a new technique for oral rehydration for infantile diarrhoea. This formula has proved highly successful in the treatment of cholera in Bangladesh, and it is hoped that the results of controlled field trials, in which WHO is collaborating with Egypt, Iran and Somalia, will serve as a springboard for a vigorous campaign of education and promotion to make this treatment available as widely as possible throughout the Region.

Disease prevention and control

15.146 Communicable diseases still constitute a considerable hazard, especially to the rural population. Malaria and schistosomiasis are increasing in prevalence in certain parts of the Region, particularly in relation to the irrigation schemes that are being rapidly expanded in many countries. In spite of efforts by the governments and WHO to improve the situation, many problems remain : for example, the lack of reliable data on prevalence and geographical distribution, inadequate diagnostic capabilities, and unknown aspects of the relation between host, agent and environment. With the tools available, however, well-conducted control programmes can contribute substantially to a reduction in the level of transmission and in the prevalence, incidence and intensity of infection.

15.147 In collaboration with governments of the Region and with increased WHO assistance, the fight continues against three other parasitic infections—leishmaniasis, trypanosomiasis and filariasis. Activities to combat leprosy are also being strengthened ; the progress being made in immunological research has advanced to a stage which gives hope of a real breakthrough.

15.148 In the global smallpox eradication campaign, notwithstanding the outstanding achievements of Afghanistan and Pakistan, which are now smallpox-free, the recent outbreak in Somalia was a serious setback. This episode should induce bordering countries, as recommended by WHO, to use the greatest vigilance and repeated searches, adopting the most modern and efficient means, and to institute educational campaigns.

15.149 Although the health laboratory programme in the Region is a substantial

one in which training courses in the different laboratory disciplines are being given high priority, laboratories still tend towards serving the individual rather than the community. A much greater effort must be made to increase and improve the laboratory contribution to epidemiological activities, and plans have been made to designate certain laboratories as Regional laboratories, where the control of vaccines and other activities which require special skills can be carried out.

15.150 Efforts to stimulate countries of the Region to develop their psychiatric resources are continuing, with special emphasis on the training of personnel to meet the various mental health needs. New ideas emanating from WHO-assisted studies on the monitoring of mental health needs in Kuwait and on strategies for extending mental health care in Sudan should be particularly helpful in the future planning and programming of mental health care.

15.151 Of the noncommunicable diseases prevalent in the Region, cancer has received most attention. Progress is being made towards a better understanding of the magnitude, distribution and specific nature of cancer in the Eastern Mediterranean, following the guidelines set in the Region's cancer programme adopted in 1975 and elaborated further by the Regional Advisory Panel on Cancer, which met for the second time in Tunis in November 1976.

Environmental health

15.152 In several Member States where financial means are available, much is being done by the respective governments to accelerate the development of community water supplies. This is an encouraging development, but only marginal progress has been made in many other countries. Notable achievements during 1977 have included the near completion of the final design of a water supply system for Kabul, Afghanistan, and the accelerated development of rural water supplies in Yemen. The more industrialized countries of the Region are now facing the problems of environmental pollution, and the Organization is stressing the economic and public health benefits to be derived from early attention to these problems. The monitoring of air and sea water pollution is now claiming long overdue attention.

Medical services

15.153 Socioeconomic change in the Region has also meant the growth of new hospitals, new efforts to modernize and expand hospital services, and the devotion of more attention to emergency medical services and associated intensive care. In response to a request by Sub-Committee A of the Regional Committee in 1976, steps are being taken to establish a regional advisory committee on emergency medical services to advise on future WHO cooperation with countries during emergencies. Because of the rapid development and extension of health and hospital services, the whole pattern of supply and use of drugs in countries of the Region needs urgent review. Studies are continuing to determine drug requirements and utilization in hospitals and in primary health care, in order to provide basic data for the establishment of national drug policies.

Research

15.154 Biomedical research continues to receive active attention. The Regional Advisory Committee on Biomedical Research, which has held two sessions (April 1976 and March 1977), is guiding the programme; in addition, two consultant

teams have visited various countries to study the potential resources for research in the Region. A directory of institutions involved in biomedical research was compiled and is being further developed. One of the major libraries in the Region is being designated as a Regional Medical Library. Following a proposal of the Regional Advisory Committee, a small scientific group was established to assist in the implementation of project proposals for research in the priority areas of health services and manpower development. It met for the first time in July-August 1977.

Administrative matters

15.155 With regard to administrative policy, the Regional Office continues to maintain a small staff, so that more funds can be made available for country programmes. In the past five years the staff has actually decreased, and further reductions are planned in the future, to the extent possible without impairing the efficiency of the Office, in line with overall WHO policy and as reflected in the programme budget proposals for the years 1978–79.

15.156 Finally, the official use of the Arabic language is being further increased in the Regional Office in accordance with resolution WHA28.34 adopted in 1975 by the Twenty-eighth World Health Assembly.

Western Pacific Region

15.157 Country health programming is being developed and will continue in several countries of the Region. In correlation with this the Regional Office will concentrate much of its efforts on organizing, or participating in, national courses on management of health services.

15.158 Efficient information systems are needed to support managerial functions at the national and international levels. In the Western Pacific Region WHO has been collaborating with Member States in the design and development of dynamic and responsive, totally integrated, health management information systems aimed at satisfying the information needs for planning and management in ministries and departments of health. It has also been further improving its own internal information system in order to provide adequate and appropriate support to the management functions associated with collaborative activities.

15.159 Research promotion and development will be mainly directed towards strengthening national research capabilities, particularly in the developing countries, through the establishment of national research councils, the development of career structures in research, the training of research workers and the provision of support to research institutions. An important aim is to strengthen certain institutions sufficiently to enable them eventually to become part of a network of collaborating centres in the Region, thus facilitating coordination of research, particularly on Regional problems, and the exchange of scientific workers. The exchange of scientific information and stimulation of research through research grants is being continued. More attention is being given to health services research, to the application of existing knowledge and to the elucidation of the natural history of diseases, particularly the parasitic and other infections common in the Region.

15.160 The Western Pacific Region has focused its activities on promoting the primary health care concept, particularly in the developing countries, to achieve the general goal of "Health for all by the year

2000". Developing or strengthening conventional health services in rural areas is not an absolutely satisfactory way of meeting the needs and expectations of the population. Dialogues on the subject, established with WHO cooperation, have contributed towards the clarification of some political and socioeconomic issues related to health development in underserved areas. A number of governments are already aware of the crucial issues that should be borne in mind or studied further once they have accepted the challenge offered by the goal of total coverage.

15.161 The trend in the Region now is to continue research and development activities in areas of new relevant technology, the promotion in the community of self-reliance in managing and financing its share of health-related activities, the interrelationship between the development of health manpower and primary health care, and the involvement of sectors other than health in total rural development. An intersectoral approach is an essential prerequisite for progress at both the national and international levels and can be achieved through technical cooperation among developing countries, as recommended by the United Nations system. Existing country or intercountry projects in which WHO cooperates in the development of comprehensive health services will be reoriented to take into account the concept of technical cooperation among developing countries, and new approaches will be devised with the participation of UNDP and other bodies of the United Nations.

15.162 In the prophylactic, diagnostic and therapeutic substances programme, WHO is working with governments on policy, legislation, management, production, procurement and distribution, with the aim of promoting the rationalization of existing systems, particularly in developing countries. Self-reliance is being engendered through exploration of the efficacy of medicinal plants, and the development of a closer relationship between traditional and western medicine than has existed in the past is being encouraged. The Western Pacific Region is ideally suited for the development of an intercountry programme because of the considerable experience accumulated in some countries of the Region in the field of traditional medicine.

15.163 Emphasis in family health will continue to be on the expansion of services and improved coverage, in particular of those at high risk. A promising trend towards the delegation of wider responsibilities to various categories of health worker, particularly health auxiliaries, is emerging in the Region. For instance, newer categories of frontline health worker are being trained and programmes for the preparation of nursing/midwifery personnel are being oriented to include community health practice with stress on health promotion, disease prevention and communication skills.

15.164 Innovative approaches are under trial to introduce the concept of primary health care in the delivery of services for the promotion of family health. Such efforts have been manifested through the organization of national and regional seminars on the delivery of maternal and child health and family planning within primary health care, and through efforts to develop an integrated approach to family health, as exemplified in Bohol Province, Philippines.

15.165 A trend showing a significant decline in fertility and crude birth rates is already discernible in a number of countries and areas in the Region. The determinants of reduction in fertility are varied and complex, and the effect of family planning

programmes appears to be greatest where they are carried out as part of multidisciplinary and intersectoral programmes for rural development. The approach of integrating family planning into maternal and child health and other health and development activities is now widely applied ; the Regional Office has collaborated in planning and implementing such integrated family health projects in twelve countries or areas. The expansion of these activities has highlighted the need to evaluate them and the first round of evaluation of the projects has been completed in three countries or areas.

15.166 Progress has also been made in integrating nutrition activities into maternal and child health services, and as a consequence nutrition surveillance in several countries has improved. As governments strive to provide improved coverage through primary health care, prospects for further progress are bright, provided adequate training and support can be given to frontline workers. National training in nutrition has been enhanced, particularly in Malaysia, Papua New Guinea and the Philippines. However, difficulty has been experienced in developing national food and nutrition policies, partly because of lack of an adequate data base but also because of the complexities of coordinating the work of the various agencies and professional disciplines concerned with nutrition and food supply.

15.167 Emphasis on the community-supported primary health care approach has brought into sharp focus the importance of health education and community involvement in health action. Consequently, a major thrust in health education has been the promotion of close collaboration between health and other agencies concerned with community efforts for development, and expansion of the concept of community participation from mere acceptance of health services to the sharing of responsibility in their management and delivery. This has been illustrated in a number of inter-agency seminars held at national level to encourage intersectoral collaboration and promote teamwork among those working at community level. Capabilities for providing media support to health programmes are gradually being strengthened in many parts of the Region. Facilities for the training of professional leaders in health education have also expanded substantially. However, further efforts are needed to devise practical ways of training field-level health workers to motivate and enlist community support, to combine the teaching of health education theory with practical experience, and to encourage a comprehensive approach in health education with a pooling of person-to-person, mass-media and community organization activities.

15.168 Member States of the Region have become increasingly aware of the need to optimize their investment in health manpower through active collaboration among all agencies concerned with its development. A close functional relationship is gradually emerging between service and planning agencies, teaching institutions and ministries of education and health. Systematic planning of manpower needs will be facilitated as greater predictive accuracy is developed within planning methodologies and also when country health programming is undertaken.

15.169 Interest in the training and use of frontline and middle-level health personnel continues to grow, with recognition of the need to prepare them for their expanded roles. A number of countries or areas have already started to provide auxiliaries with additional training in clinical diagnosis and treatment and in preventive and promotive work, to enable them to play a wider role

in health care delivery. Curricula are also being developed and programmes initiated for the training of new categories of village-level health worker in many parts of the Region.

15.170 A major challenge is to examine the relevance of existing curricula to the needs and job requirements of various categories of health worker. This is expected to be a long process requiring close collaboration between governments and WHO.

15.171 Continuing education is becoming a routine requirement for all health workers, in order to meet changing needs in health care and to promote professional growth, career development and job satisfaction. However, the concept needs to be better understood so that national systems of continuing education can emerge for all categories of health personnel.

15.172 A major development has been recognition of the need for training to improve the management capabilities of health personnel. A beginning has been made and training in management will be given greater emphasis in the years to come.

15.173 The main thrust of future activities will be in the area of educational technology, with a view to developing cost-effective training methods, such as task-oriented training, improved screening for student enrolment and more meaningful evaluation of student performance. It is envisaged that national teacher training centres will play a major role in this endeavour.

15.174 The fellowships programme of WHO is expected to become increasingly important for the training of teachers as countries acquire the ability to develop training facilities suited to their own needs. Fellowships will be better utilized, with training needs more explicitly defined and evaluated.

15.175 Member Governments, especially in the developing countries, have shown great interest in the Expanded Programme on Immunization, and more requests are being received for WHO collaboration in the development and expansion of programmes not only to cover a greater proportion of the susceptible population but also to include other diseases against which immunizing agents already exist. There will be need for more research on logistics, the cold chain, the production of better vaccines, the utilization of health manpower and other aspects of the delivery of immunization programmes at the local level.

15.176 This development also calls for strengthening of local laboratory services in order to test the quality of vaccines, and for the designation of a Regional testing centre for areas where local laboratory services are not available. The idea of strengthening vaccine-producing capabilities in certain developing countries, so that they may ultimately meet the needs of other developing countries in the Region, will be pursued.

15.177 The lack of adequate epidemiological services and epidemiological surveillance, so essential for disease intelligence and control, remains a problem which has to be solved. Efforts are being made to train health manpower to meet the critical shortage of epidemiologists. The development of adequate statistical and laboratory support, particularly at the intermediate and peripheral levels, needs to continue.

15.178 Attention continues to be given to the diarrhoeal diseases, sexually transmitted diseases, arbovirus infections and diseases included under the Special Pro-

gramme for Research and Training in Tropical Diseases, notably schistosomiasis, filariasis, malaria and leprosy, which afflict a large proportion of the population of many of the developing countries in the Region. Research towards a better understanding of the epidemiological and other features of these diseases, so that adequate preventive and control measures can be devised, remains a priority.

15.179 The intensification of BCG immunization as part of the Expanded Programme on Immunization is expected to have a significant effect on tuberculosis control in the Region, although case-finding, domiciliary treatment and training of health personnel will need to be continued.

15.180 As regards malaria, there is some room for cautious optimism about the immediate future, since organized anti-malaria measures were introduced rather late in a number of countries of the Region or have recently been reorganized or revitalized. It is obvious, nevertheless, that a stage without marked progress is slowly being reached, during which, at least in parts of some countries, malaria will continue to constitute a public health problem unless radical changes are introduced. Malaria manpower development and new approaches in the implementation of projects at the periphery will be vital elements in surmounting some of the operational and administrative difficulties encountered in remote areas ; at the same time, solutions to some of the technical problems, particularly in relation to the occurrence of multi-drug-resistant strains of *Plasmodium falciparum* and to the elusive vectors *Anopheles balabacensis* and *An. farauti*, demand the active promotion of immediate research into the development of alternative antimalarial drugs and of supplementary or alternative measures of vector control.

15.181 Even developing countries in the Region are becoming concerned about the increasing prevalence of chronic and degenerative diseases such as cancer and cardiovascular diseases. The development of cancer registries, studies on causation factors and the establishment of community-based control programmes against cancer, cardiovascular diseases and other chronic diseases show a rising trend.

15.182 Collaboration with Member States in the Region in the field of environmental health encompasses a broad range of activities, with emphasis on advisory and consultant services aimed at strengthening national institutions and programmes for providing environmental health services, promoting and planning water supply and sewerage development, elaborating policies and implementing programmes for controlling all forms of pollution and health hazards, setting up surveillance and monitoring systems for the early detection and control of pollution, and training manpower through individual and group educational activities.

15.183 In relative terms, technical co-operation activities in most aspects of environmental pollution control are on the increase, including the training of specialist manpower. Although water supply and sewerage development has accelerated, WHO cooperation in this field has not needed to be increased to the same extent because there are many sources other than WHO providing cooperation and countries are developing some technical capacity of their own to undertake such programmes ; nevertheless, various planning and programme management aspects continue to need technical cooperation from WHO.

15.184 It is expected that, because of the paucity of trained national staff, WHO

will become more involved in training programmes for various categories of environmental health and pollution control staff as national programmes are developed.

15.185 Broad environmental planning studies to develop policy options and to guide control strategies have not been initiated in most countries or areas in the Region. These complex activities, which are multidisciplinary in nature, will require increasing support from WHO in future years.

15.186 WHO cooperation in the area of health statistics continues. It is concerned with the development of simple and systematic procedures for the collection, processing, analysis and compilation of health statistical data, primarily related to the peripheral health and medical care services; with the improvement of records systems, particularly those of health centres and hospitals; and with the training of national health statistical personnel. The Ninth Revision of the International Classification of Diseases is being introduced in the Western Pacific Region and its use strongly encouraged. The use by lay or nonmedical health personnel of the classification which is being developed for mortality and morbidity data is being encouraged as an essential tool in the efficient operation of the primary health care system.

Annex 1

Members and Associate Members of the World Health Organization

at 31 December 1977

At 31 December 1977 the World Health Organization had 150 Member States and two Associate Members. They are listed below with the date on which each became a party to the Constitution or the date of admission to associate membership.

Afghanistan	19 April 1948
Albania	26 May 1947
Algeria *	8 November 1962
Angola	15 May 1976
Argentina *	22 October 1948
Australia	2 February 1948
Austria *	30 June 1947
Bahamas *	1 April 1974
Bahrain	2 November 1971
Bangladesh	19 May 1972
Barbados *	25 April 1967
Belgium *	25 June 1948
Benin	20 September 1960
Bolivia	23 December 1949
Botswana	26 February 1975
Brazil *	2 June 1948
Bulgaria *	9 June 1948
Burma	1 July 1948
Burundi	22 October 1962
Byelorussian SSR	7 April 1948
Canada	29 August 1946
Cape Verde	5 January 1976
Central African Empire *	20 September 1960
Chad	1 January 1961
Chile *	15 October 1948
China	22 July 1946
Colombia	14 May 1959
Comoros	9 December 1975
Congo	26 October 1960
Costa Rica	17 March 1949
Cuba *	9 May 1950
Cyprus *	16 January 1961
Czechoslovakia *	1 March 1948
Democratic Kampuchea *	17 May 1950
Democratic People's Republic of Korea	19 May 1973
Democratic Yemen	6 May 1968
Denmark *	19 April 1948
Dominican Republic	21 June 1948
Ecuador *	1 March 1949
Egypt *	16 December 1947
El Salvador	22 June 1948
Ethiopia	11 April 1947
Fiji *	1 January 1972
Finland *	7 October 1947
France	16 June 1948
Gabon	21 November 1960
Gambia *	26 April 1971
German Democratic Republic *	8 May 1973
Germany, Federal Republic of *	29 May 1951
Ghana *	8 April 1957
Greece *	12 March 1948
Grenada	4 December 1974
Guatemala *	26 August 1949
Guinea *	19 May 1959
Guinea-Bissau	29 July 1974
Guyana *	27 September 1966
Haiti *	12 August 1947
Honduras	8 April 1949
Hungary *	17 June 1948
Iceland	17 June 1948
India *	12 January 1948
Indonesia *	23 May 1950
Iran *	23 November 1946
Iraq *	23 September 1947
Ireland *	20 October 1947
Israel	21 June 1949
Italy	11 April 1947
Ivory Coast *	28 October 1960
Jamaica *	21 March 1963
Japan *	16 May 1951
Jordan *	7 April 1947

* Member States that have acceded to the Convention on the Privileges and Immunities of the Specialized Agencies and its Annex VII.

Kenya *	27 January 1964
Kuwait *	9 May 1960
Lao People's Democratic Republic *	17 May 1950
Lebanon	19 January 1949
Lesotho *	7 July 1967
Liberia	14 March 1947
Libyan Arab Jamahiriya *	16 May 1952
Luxembourg *	3 June 1949
Madagascar *	16 January 1961
Malawi *	9 April 1965
Malaysia *	24 April 1958
Maldives *	5 November 1965
Mali *	17 October 1960
Malta *	1 February 1965
Mauritania	7 March 1961
Mauritius *	9 December 1968
Mexico	7 April 1948
Monaco	8 July 1948
Mongolia *	18 April 1962
Morocco *	14 May 1956
Mozambique	11 September 1975
Nepal *	2 September 1953
Netherlands *	25 April 1947
New Zealand *	10 December 1946
Nicaragua *	24 April 1950
Niger *	5 October 1960
Nigeria *	25 November 1960
Norway *	18 August 1947
Oman	28 May 1971
Pakistan *	23 June 1948
Panama	20 February 1951
Papua New Guinea	29 April 1976
Paraguay	4 January 1949
Peru	11 November 1949
Philippines *	9 July 1948
Poland *	6 May 1948
Portugal	13 February 1948
Qatar	11 May 1972
Republic of Korea *	17 August 1949
Romania *	8 June 1948
Rwanda *	7 November 1962
Samoa	16 May 1962
Sao Tome and Principe	23 March 1976
Saudi Arabia	26 May 1947
Senegal *	31 October 1960
Sierra Leone *	20 October 1961
Singapore *	25 February 1966
Somalia	26 January 1961
South Africa	7 August 1947
Spain *	28 May 1951
Sri Lanka	7 July 1948
Sudan	14 May 1956
Surinam	25 March 1976
Swaziland	16 April 1973
Sweden *	28 August 1947
Switzerland	26 March 1947
Syrian Arab Republic	18 December 1946
Thailand *	26 September 1947
Togo *	13 May 1960
Tonga *	14 August 1975
Trinidad and Tobago *	3 January 1963
Tunisia *	14 May 1956
Turkey	2 January 1948
Uganda	7 March 1963
Ukrainian SSR	3 April 1948
Union of Soviet Socialist Republics *	24 March 1948
United Arab Emirates	30 March 1972
United Kingdom of Great Britain and Northern Ireland *	22 July 1946
United Republic of Cameroon	6 May 1960
United Republic of Tanzania *	15 March 1962
United States of America	21 June 1948
Upper Volta *	4 October 1960
Uruguay *	22 April 1949
Venezuela	7 July 1948
Viet Nam	17 May 1950
Yemen	20 November 1953
Yugoslavia *	19 November 1947
Zaire *	24 February 1961
Zambia *	2 February 1965

Associate Members

Namibia	16 May 1974
Southern Rhodesia [1]	16 May 1950

* Member States that have acceded to the Convention on the Privileges and Immunities of the Specialized Agencies and its Annex VII.

[1] Southern Rhodesia's associate membership is regarded as being in suspense.

Annex 2

Organizational and Related Meetings

1. Meetings in 1976

Executive Board: Working Group on Preparation of the Sixth General Programme of Work Covering a Specific Period: 1978–1983 Inclusive	Geneva, 8, 9 and 12 January
Executive Board, fifty-seventh session	Geneva, 14–30 January
Executive Board: Standing Committee on Nongovernmental Organizations	Geneva, 21 January
Executive Board: Ad Hoc Committee on the International Conference on Primary Health Care	Geneva, 29–31 March
Executive Board: Ad Hoc Committee to consider the report of the External Auditor on the accounts of WHO for 1975	Geneva, 3 May
Twenty-ninth World Health Assembly	Geneva, 3–21 May
World Health Assembly: Special Committee of Experts to study the health conditions of the inhabitants of the occupied territories in the Middle East	Geneva, 5–7 May
Executive Board, fifty-eighth session	Geneva, 24–25 May
Executive Board: Working Group on the Organizational Study on WHO's Role at the Country Level, particularly the Role of the WHO Representatives	Geneva, 24–25 May
Executive Board: Ad Hoc Committee on Method of Work of the Health Assembly and the Executive Board	Geneva, 25 May
Regional Committee for the Western Pacific, twenty-seventh session	Manila, 6–10 September
Regional Committee for Africa, twenty-sixth session	Kampala, 8–15 September
Regional Committee for Europe, twenty-sixth session	Athens, 14–18 September
Regional Committee for South-East Asia, twenty-ninth session	Srinagar (India), 14–20 September
Regional Committee for the Americas, twenty-eighth session / XXIV Meeting of the Directing Council of PAHO	Mexico City, 27 September–7 October
Regional Committee for the Eastern Mediterranean : Subcommittee A	Karachi, 11–15 October
Executive Board: Programme Committee	Geneva, 1–5 November

2. Meetings in 1977

Executive Board: Ad Hoc Committee on Method of Work of the Health Assembly and of the Executive Board	Geneva, 6–10 January and 18–21 January
World Health Assembly: Special Committee of Experts to study the health conditions of the inhabitants of the occupied territories in the Middle East	Geneva, 10–12 January, 14–15 March and 25–27 April
Executive Board, fifty-ninth session	Geneva, 12–28 January
Executive Board: Standing Committee on Nongovernmental Organizations	Geneva, 17 January
Executive Board: Working Group on the Organizational Study on WHO's Role at the Country Level, particularly the Role of the WHO Representatives	Geneva, 27 January
Executive Board: Ad Hoc Committee on Documentation and Languages of the Health Assembly and the Executive Board	Geneva, 4–6 April
Executive Board: Ad Hoc Committee to consider the report of the External Auditor on the accounts of WHO for 1976	Geneva, 2 May
Thirtieth World Health Assembly	Geneva, 2–19 May

Executive Board: Ad Hoc Committee on Long-term Planning of International Cooperation in Cancer Research	Geneva, 20 May Lyon (France), 9–10 November
Executive Board, sixtieth session	Geneva, 23–24 May
Regional Committee for South-East Asia, thirtieth session	Bangkok, 2–8 August
Regional Committee for Europe, twenty-seventh session	Munich (Federal Republic of Germany), 6–10 September
Regional Committee for the Western Pacific, twenty-eighth session	Tokyo, 6–12 September
Regional Committee for Africa, twenty-seventh session	Brazzaville, 7–14 September
Regional Committee for the Americas, twenty-ninth session / XXV Meeting of the Directing Council of PAHO	Washington, 27 September–7 October
Regional Committee for the Eastern Mediterranean: Subcommittee A	Kuwait, 10–13 October
Executive Board: Programme Committee	Geneva, 31 October–4 November

Annex 3

Intergovernmental Organizations which have entered into formal agreements with WHO approved by the World Health Assembly

at 31 December 1977

African Development Bank
International Committee of Military Medicine and Pharmacy
International Office of Epizootics
League of Arab States
Organization of African Unity

Nongovernmental Organizations in official relations with WHO

at 31 December 1977

African Medical and Research Foundation International
Biometric Society
Christian Medical Commission
Commonwealth Medical Association
Council for International Organizations of Medical Sciences
Inter-American Association of Sanitary and Environmental Engineering
International Academy of Pathology
International Agency for the Prevention of Blindness
International Air Transport Association
International Association for Accident and Traffic Medicine
International Association of Agricultural Medicine and Rural Health
International Association for Child Psychiatry and Allied Professions
International Association of Logopedics and Phoniatrics
International Association of Medical Laboratory Technologists
International Association of Microbiological Societies
International Association on Water Pollution Research
International Astronautical Federation
International Brain Research Organization
International College of Surgeons
International Commission on Radiation Units and Measurements
International Commission on Radiological Protection
International Committee of Catholic Nurses
International Committee on Laboratory Animals
International Committee of the Red Cross
International Confederation of Midwives
International Council on Alcohol and Addictions

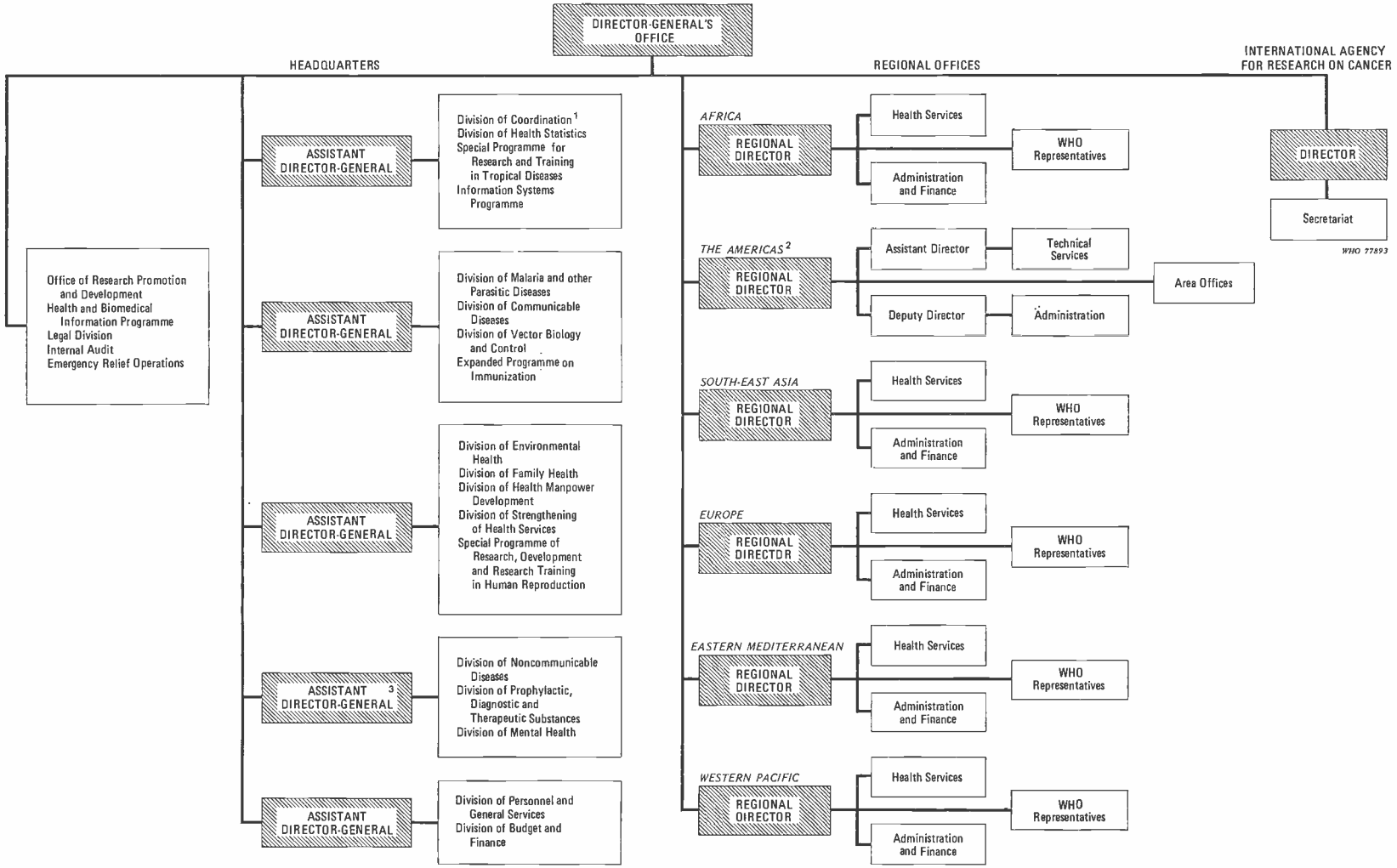
International Council on Jewish Social and Welfare Services
International Council of Nurses
International Council of Scientific Unions
International Council on Social Welfare
International Council of Societies of Pathology
International Cystic Fibrosis (Mucoviscidosis) Association
International Dental Federation
International Diabetes Federation
International Electrotechnical Commission
International Epidemiological Association
International Ergonomics Association
International Federation of Clinical Chemistry
International Federation of Fertility Societies
International Federation of Gynecology and Obstetrics
International Federation for Housing and Planning
International Federation for Information Processing
International Federation for Medical and Biological Engineering
International Federation of Medical Student Associations
International Federation of Multiple Sclerosis Societies
International Federation of Ophthalmological Societies
International Federation of Pharmaceutical Manufacturers Associations
International Federation of Physical Medicine and Rehabilitation
International Federation of Sports Medicine
International Federation of Surgical Colleges
International Hospital Federation
International Hydatidological Association
International League of Dermatological Societies
International League against Epilepsy
International League against Rheumatism
International Leprosy Association
International Organization for Standardization
International Organization against Trachoma
International Paediatric Association
International Pharmaceutical Federation
International Planned Parenthood Federation
International Radiation Protection Association
International Society of Biometeorology
International Society of Blood Transfusion
International Society for Burn Injuries
International Society and Federation of Cardiology
International Society of Chemotherapy
International Society of Endocrinology
International Society of Hematology
International Society for Human and Animal Mycology
International Society of Orthopaedic Surgery and Traumatology
International Society of Radiographers and Radiological Technicians
International Society of Radiology
International Sociological Association
International Solid Wastes and Public Cleansing Association
International Union of Architects
International Union of Biological Sciences
International Union against Cancer
International Union for Child Welfare
International Union for Conservation of Nature and Natural Resources
International Union for Health Education
International Union of Immunological Societies
International Union of Local Authorities
International Union of Nutritional Sciences
International Union of Pharmacology
International Union of Pure and Applied Chemistry
International Union of School and University Health and Medicine
International Union against Tuberculosis
International Union against the Venereal Diseases and the Treponematoses
International Water Supply Association
Joint Commission on International Aspects of Mental Retardation
League of Red Cross Societies
Medical Women's International Association
Permanent Commission and International Association on Occupational Health
Population Council
Rehabilitation International
Transplantation Society
World Association of Societies of (Anatomic and Clinical) Pathology
World Confederation for Physical Therapy
World Council for the Welfare of the Blind
World Federation of Associations of Clinical Toxicology Centers and Poison Control Centers
World Federation of the Deaf
World Federation of Hemophilia
World Federation for Medical Education
World Federation for Mental Health
World Federation of Neurology
World Federation of Neurosurgical Societies
World Federation of Nuclear Medicine and Biology
World Federation of Occupational Therapists
World Federation of Parasitologists
World Federation of Proprietary Medicine Manufacturers
World Federation of Public Health Associations
World Federation of Societies of Anaesthesiologists
World Federation of United Nations Associations
World Medical Association
World Psychiatric Association
World Veterans Federation
World Veterinary Association

Annex 4

Structure of the World Health Organization

at 31 December 1977

WHO Secretariat as a Whole

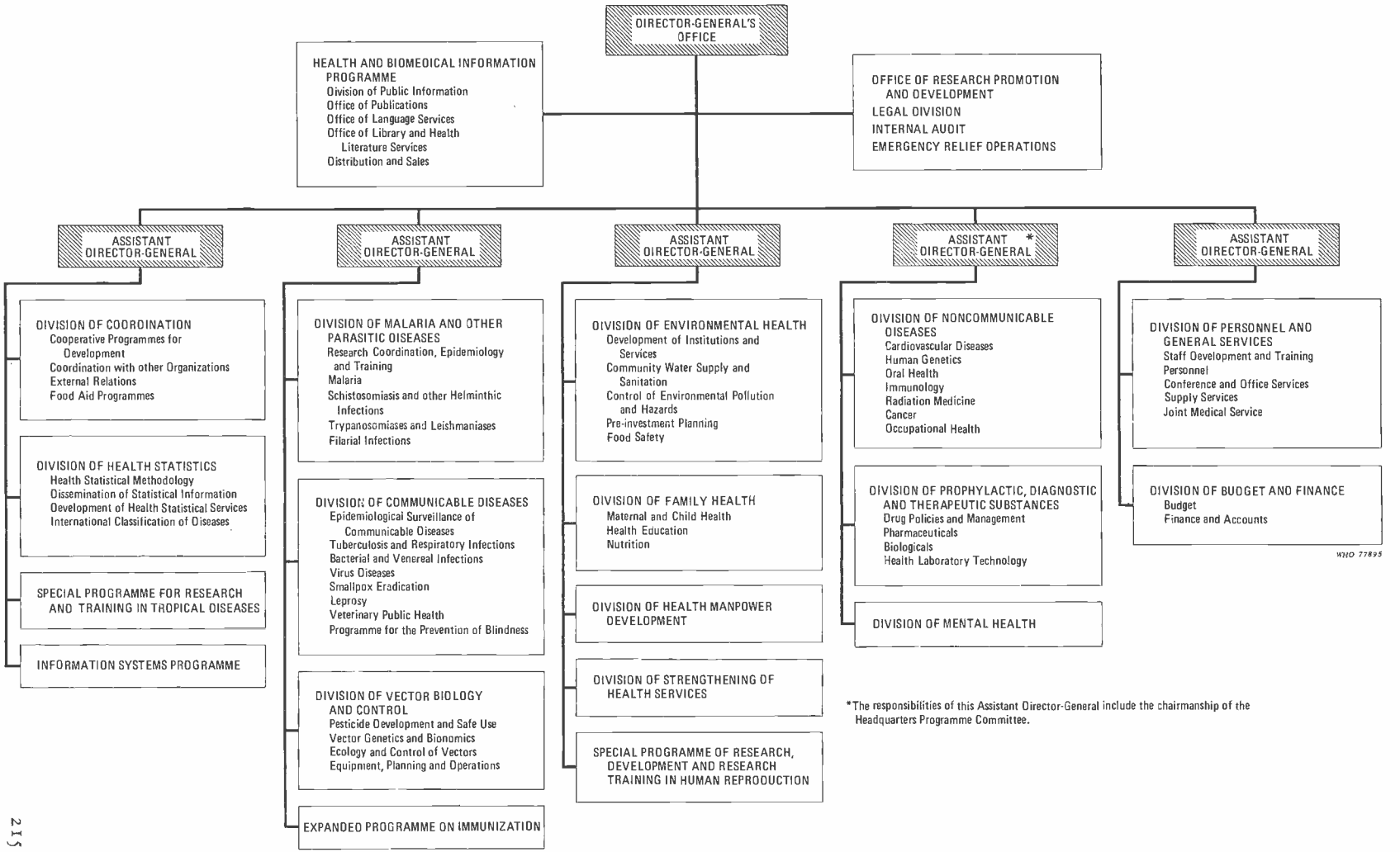


[1] The Liaison Office with the United Nations and the WHO medical advisers to UNICEF (who are also responsible for liaison with UNFPA) report to the Division of Coordination.

[2] Regional Office for the Americas/Pan American Sanitary Bureau.

[3] The responsibilities of this Assistant Director-General include the chairmanship of the Headquarters Programme Committee.

WHO Headquarters Secretariat



*The responsibilities of this Assistant Director-General include the chairmanship of the Headquarters Programme Committee.

INDEX

Index

References are by paragraph. Main references by subject are in bold type.

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